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The Gardener's Monthly.

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

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HINTS FOR JANUARY.

INTRODUCTORY.

In view of the increasing number of new names on the subscription books of our magazine, it may seem proper at the commencement of another volume to state that our *Monthly Hints* are not intended to teach what should be done in the garden at the stated times. A "Calendar of operations" might do for a nation only three hundred miles square, where the idea of these monthly rules originated. In a country so large as ours, where at one end people are eating their first Strawberries; while at the other they are just going into winter quarters; a list of things to be done every day becomes an absurdity—our aim is to treat of special things, but in a *general way*; giving each month rather an idea of what might be done in our particular latitude, but in such a way that the reader North or South may profit by it when his proper season comes. The idea of our hints is in accordance with that of our whole work. We do not aim to make gardeners of our readers. There are good books especially written for that purpose, which, with some practical experience, will teach the art,—our object is *improvement*. Whatever can be learned from either old or new sources,—whatever will improve what we already practice,—whatever will aid the progress of any horticulturist or lover of nature, from the merest tyro to the one who has already achieved the highest success in the art, is the object of our journal.

Our hints cannot always be new,—what is true in one year ought to be so the next. But it is not exactly so. New circumstances and conditions, if they do not alter old truths, certainly reveal new ones, and we seldom take our pen

for this column without feeling that the old story has presented some new phase. This year for instance, in talking of the

FLOWER GARDEN AND PLEASURE GROUND.

we shall have to talk more of planting flowers in "ribbands" and colored masses, which seems growing in popular favor, and we may as well remark at once, as appropriate to this season, that the form of the beds in which plants have to be grown on this system, is a matter of very great importance, if we would not offend the eye of taste. Our floral beds are seldom in good taste. We mark out a plan on a piece of paper. Every line accords with another line—all is in harmony. But when we lay it off on the ground it has a very different effect, because we look on at an acute angle and not from a perpendicular point as on the plan. The circle in the picture becomes a dull ellipse in practice. For this reason any plan worked out on a circular idea, seldom looks well on the ground; oval or elliptical lines do much better. This is particularly the case where this ribbon style of gardening is to be carried out. Indeed the very best effects we have seen have been where the two sides of a straight path have been bordered by straight lines of different colors,—or where a raised bank has had the colors properly arranged with the tallest colored plants at the back.

Of plants that are now used in massing for their colored leaves, we name some as follows: *Gnaphalium lanatum*, grey; *Centaurea ragusina*, silver grey; *Koniga maritima variegata*, or variegated Sweet Alyssum, white and green

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striped; *Pyrethrum aureum*, golden leaved; *Cerastium tomentosum*, greenish grey; *Achillea tomentosa*, greyish green; *Caladium esculentum*, used rather for the peculiar effect of its large rather veined leaves of a glaucous green; *Canna Warcewiczii*, blood red; *Coleus Verschaffeltii*, of these there are now scores of varieties, varying chiefly in the proportion of purple to the green in each leaf; *Geraniums*,—the old zonales or horse shoe leaved *Pelargoniums*, have now innumerable forms; there is the old green with the black mark, and another class called "tricolors" which have a shade of pink between the black "horse shoe" and the outside. Some have white edges, and others with mixtures of gold, white, pink, black, or green.—*Vinca major variegata*; *Vinca major venosa* with gold veins; *Lonicera brachybotrya variegata*, with gold veins; *Variegated Balm* with yellowish white edge on a body of green; *Stachys lanata*, bluish grey; *Sedum villosum*, grey; *Sedum acre*, greenish yellow; *Sedum carneum variegatum*, gray and white; *Thymus aurea*, Golden Thyme; *Veronica Andersonia variegata*, cream white; *Funkia variegata*, yellow and green; *Tradescantia discolor*, purple with green upper surface; *Dracenas*, varieties from dark copper to rose and white; *Croton*, gold and green; *Japan Euonymus*, gold and green; *Begonias*, various shades of leaves in rather shaded warm places; *Irisene Herbstii*, vermilion with gold veins, there are some forms with gold leaves; *Teilantheras*, many varieties, with leaves of shades of red, brown, green and vermilion; *Alternanthera*, shaded like *Teilantheras*; *Wigandia caraccensis*, large, coarse, but striking green leaves; *Farfugium grande*, green with gold spots; *Cineraria maritima*, floury white; *Humea elegans* and *Amaranthus melancholicus*, both brown; these are all that we find on our memorandum book as being grown anywhere the past season, there are we think some others. No lists complete have ever been made, and we shall be glad to be reminded if we have omitted any. We hope, however, that the "rage" for these will not supersede the old fashioned bedding plants.

To be a good bedding plant, one must have the power of blooming through most of the season. The best of the well known things for this purpose are *Abutilons*, *Petunias*, *Lobelia*, Chinese *Hibiscus*, zonale *Geraniums*, *Coleus*, some *Begonias* like *Sandersii* and some others; *Lemon Verbena*, *Blue Eupatorium*, *Cupheas*, *Bouvardia leiantha*, *Brugmansia suaveolens*, *Helio-*

trope, *Mignonette*, *Lantanas*, *Justicia carnea*, *Cyrtanthera magnifica*, *Habrothamnus elegans*, *Rose Geraniums*, *Oxalis floribunda*, and multi-flora, *Lophospermum*, *Alon-oa incisa* and *Warcewiczii*, *Maurandia Barclayana*, *Verbenas*, *Tropæolum*, *Gazanias*, *Autumn Salvias*, *Plumbago capensis*, *Asclepias curassavica*, *Angelonia Gardneriana*, *Torenia asiatica*, *Ruellia elegans*, *Browallia elata*; a fair selection can be made from these, but there are yet others which can be obtained from any nurseryman's catalogue. Many annuals last a long time in bloom in spring, or come into bloom in fall, and are all well in their way, also. It is rather early to talk about these matters; but a month or two will soon come on, and it is as well to have these things arranged in time. There are many things which will be benefited by a pruning at this season.

Wherever any part of a tree does not grow freely, pruning of such weak growth, at this season, will induce it to push more freely next year. All scars made by pruning off large branches, should be painted or tarred over, to keep out the rain. Many fruit trees become hollow, or fall into premature decay, from the rain penetrating through old saw cuts made in pruning. Also the branches should be cut close to the trunk, so that no dead stumps shall be produced on the tree, and bark will readily grow over. Many persons cut off branches of trees in midsummer, in order that the returning sap may speedily clothe the wound with new bark, but the loss of much foliage in summer injures the tree, and besides, painting the scar removes all danger of rotting at the wound.

Some judgment is required in pruning flowering shrubs, roses, etc., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set with a pair of shears, and he goes through the whole place, clipping off everything indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth, and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut in more severely than the stronger ones. Some things like the Mock Oranges, Lilacs and

others, flower on the wood of last year—to prune these much now, therefore, destroys the flowering; while such as *Altheas*, which flower on the young wood, cannot be so severely cut in, looking to that operation alone. We give below a full list of the shrubs in most common cultivation of the different classes.

Ornamental shrubs that flower chiefly from the wood of the preceding year; *Snowy Mespilus*, *Dwarf Almond*, the different kinds of *Andromedas*, *Azaleas*, *Kalmias*, *Rhododendrons*, *Calycanthus*, *Corchorus*, *Cornelian Cherry*, and the *Dogwoods*; *Philadelphuses*, *Deutzias*, *Mezerion*, *Leatherwood*, *Fothergilla*, *Golden Bell*, *Hydrangeas*, *Itea Virginica*, *Jasmines*, *Privet*, *Upright Fly* and *Tartarian Honeysuckles*, *Pyrus japonica*; the *Missouri* and other ornamental *Currants*; most of the early flowering *Spiræas*, *Dwarf Pavias*, *Snow Berries*, *Guelder Rose*, *Wiegelia rosea*, *Persian* and other *Lilacs*, *Annual Roses*.

Shrubs that flower from the present season's growth; *Amorpha fruticosa*, *Ceanothus Americana*, *Bladder Senna*, *Coronillas*, *Burning Bushes*, *Genistas*, *Scotch Broom*, *Althæa*, *Hypericums*, such as *Kalmianum*, *prolificum*, etc.; *Green-fringe*, *Flowering Locusts*, the *Fall-flowering Spiræas*, *Tamarix*, *Vitex agniscæstus*, &c.

These lists also embrace the most desirable of ornamental shrubs in cultivation, from which the amateur may select when the planting season arrives.

GREENHOUSE.

The season of the year has arrived when this department of gardening is more attractive than any other. It is one that calls for a great part of a gardener's skill—indeed intelligent gardeners can seldom be found willing to accept a situation where there is "no glass."

Glass houses of late years have become so popular since their economical building has been better understood, that it is rare indeed that we do not find in most gardens, however small, the owners of which have any pretention to taste or elegance, a plant cabinet of some kind—whether it be a conservatory or greenhouse, large enough to demand the constant care of an intelligent gardener; or a small case of a few dozen plants, under the management of some lady of the family. The methods of culture of plants too are better understood than they were formerly. At one time specific directions were thought essen-

tial for nearly every variety of plant. Now a few general rules, varied to suit circumstance when once understood, render the culture of plants in a general sense, easy. Whereas, at one time as many variety of soils as there are drugs in an apothecary's store, and a prescription giving the exact proportion in weight or measure of each simple material was the rule for success; now any light rich porous loam answers for most purposes; and only those who seek great perfection in their particular fancies, pay particular attention to any great minutiae of soils.

The surface soil, containing the spongy mass of surface roots, from a wood; the first two inches of an old pasture-field; the turfy spongy mass called peat from sandy bogs or swamps; a little well decayed hot-bed manure; some sharp sand; are now about the only "elements" that the most skillful gardener cares to have by him; and many a good gardener has to find himself minus of some of these, and be satisfied.

The soil for potting should be used rather dry; that is it should be in such a condition that it will rather crumble when pressed, than adhere closer together. Large pots—those over four inches should have a drainage. This is made by breaking up broken pots to the size of beans, putting them in the bottom a quarter or half an inch deep and putting about an eighth of an inch of old moss or any similar rough material over the mass of "corks" to keep out the earth from amongst it. Little benefit arises from draining pots below four inch, the moisture filtering through the porous pots quite fast enough; and the few pieces of "drainage" often thrown in with soil placed right over, is of little or no use.

In managing plants, treatment depends on what we want of them. If we want them to bloom as soon as possible, we keep a high and moist temperature; if we wish to keep them back, we keep the temperature as low and dry as the plants will bear. In the *Camellia* for instance, those we want to flower now, or soon, should have a temperature of 45° to 50°, and if the house be not naturally moist, should be often syringed with clear water, soft water when to be had, and always made, by adding warm water, of the same temperature as the house. If the flowers are not wanted till March or April, 38° or just above freezing, and the atmosphere as dry as possible at that degree, should be the rule. When *Camellias* are in bloom, if the house be kept moist, the temperature should

not be allowed to fall suddenly, or moisture will condense on the petals. For forcing, we have generally found the strong growing kinds most successful: those of the Anemone flowered section for instance. *Azaleas* require much the same treatment as *Camellias*. The best time for repotting these, as it is of almost every plant that requires but one yearly repotting, is just before the new buds start into growth. It is not well to have pots removed into larger ones, unless they are very full of roots; nor into a much larger one than the plant was in before. When too large a pot is employed, much of the beneficial elements the soil contains is carried away by daily waterings before the roots get the benefit of it. Occasional repottings of fresh soil are advantageous to plants for the same reason.

This is the proper time to trim *Camellias*, *Azaleas* or any other strong-growing greenhouse plant, that may be desirable to bring into a good shape. Those shoots that are required to grow the fastest should be pruned in the most severely—those that are already strong and vigorous if in their right positions should be let alone. Sometimes a strong shoot is growing where it is not wanted, and cutting away might make the matter worse, as the young bud near the cut will push all the stronger for the pruning; but these are to be pinched right out after they push. Sometimes *Camellia* buds drop—most generally from injury to the root—the fibres either withering for want of water, or rotting from too much. An atmosphere in which the soil does not require frequent watering is the best security against this trouble. There is no sweeter pot plant than the *Daphne*. They like a cool and damp place. *Epacris*, *Acacias*, and most of these hard-wooded greenhouse plants, frequently suffer from too much heat at this season; 40° to 50° is quite enough for them. In England where these plants are grown to perfection, they never apply fire heat except when mats are insufficient to keep out the frost. *Cinerarias*, *Fuchsias*, *Calceolarias*, *Pelargoniums*, and such soft wood-ed greenhouse plants, of which fine specimens are desired, should have their final shift now, their branches tied out a little so that every leaf has room to develop itself, and get all the light possible.

In the choice of greenhouse plants we often feel sorry that our old fashioned blooming plants should be so much neglected for some new fashioned fellow, whose only merit may be a curl of the leaf, or pig tail down the back of the flower.

We would not discourage these by any means,—let us have plenty of these rare and curious things,—but at the same time let us have those banks of blossoms which once made our old greenhouses so gay, even if the individual plants are not quite so well grown.

WINDOW PLANTS.

These suffer much at this season from the high and dry temperatures at which it is necessary, for human comfort, to keep our dwellings. Air can seldom be admitted, from the lowness of the external temperature. Saucers of water under the plants do much to remedy the aridity from which room plants suffer. In such cases, however, so much water must not be given to the plants as to those without saucers. The water is drawn up into the soil by attraction, and though the surface will appear dry, they will be wet enough just beneath. The more freely a plant is growing, the more water it will require; and the more it grows, the more sun and light it will need. In all cases, those which seem to grow the fastest should be placed nearest the light. The best aspect for room plants in the south-east. They seem like animals in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find their plants, by some unlucky miscalculation, frozen in the morning, do not remove them at once to a warm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing; sun light will only help the frost's destructive powers.

VEGETABLE GARDEN.

Cabbages and lettuces in frames for protection through the winter, should have all the air possible whenever the thermometer is above the freezing point; when it is below, they need not be uncovered. They require no light when there is not heat enough to make them grow. Examine for mice occasionally. If noticed, soak peas in water till they swell, then roll in arsenic, and bury in the soil. They prefer these to lettuce when so prepared.

The preparing of manure ready for spring operations, at every favorable opportunity, should not be forgotten. Next to draining and subsoiling, nothing is of more importance than this.

Much has been said of guano, phosphates, &c.—all very well in certain cases—but nothing

is so well adapted to the permanent improvement of soil as manure composed in the main of decomposing vegetable matter. It is always light and porous, thereby allowing air to circulate freely through the soil; it absorbs moisture, which in dry weather is given off to the drier soil slowly, to the advantage of the plants near by; and, what is not a small point in its favor, it aids in giving a dark black color to the soil, which renders it so much warmer in early

spring; and, by so much, better adapted to the early raising of vegetables. It is also a good rule to have the manure well decomposed before using it. There are few things which do not object to fresh manure, and a still fewer number that might, perhaps, prefer it; but the major part do best in thoroughly fermented material. Leaves, litter, and refuse vegetable matter of all kinds, should be got together at every favorable opportunity, and well mixed in with manure.

COMMUNICATIONS.

LETTERS FROM THE PACIFIC COAST.

SALT LAKE CITY, October 13th, 1869

Dear Monthly: Among the large party that left Philadelphia on the evening of the 6th of October, bound for the Golden State, was one, who, from childhood, had longed for an opportunity of beholding the varied and enormous vegetation of the Pacific Coast; who, in many a brilliant day-dream had climbed the Sierra Nevada; rode mustangs among huge masses of flowering shrubs, and beneath the giant pines that skirt the glorious Yo-Semite,—and then in imagination, would soar away to the Sequoia groves, with their old tops shattered and scarred with the tempests of centuries; and see as if in person, their tremendous bodies, standing like temples of a past age, their rough, shaggy bark marking them out by a glance from their lesser companions:—and again, mingling in his dreams would appear the rich productions of tree and vine, which a mild climate has so generously lavished upon this favored state. The reality has so far exceeded the visionary, that the writer trusts his readers may feel some little interest in the narration of his wanderings.

The ride through the States has now become an old story; but to the writer always new, as he sees for the first time many a little homely wayside plant thrusting up its head for recognition; but railways are poor conveyances for botanizing, and with a backward, wishful glance, we go whirling past scores of unknown candidates for our herbarium, until we reach the "Father of Waters." On the morning of the 9th, we awoke to find ourselves steaming across the broad prairies of Iowa, a great rolling country stretching away for many miles, as far as the

eye can reach, with immense fields of wheat and corn on every side, the crops giving evidence of a highly fertile soil. We arrive at Council Bluffs about 12 o'clock, M., and cross over the rapid muddy waters of the Missouri to the city of Omaha, Nebraska. This place, the eastern terminus of the Union Pacific R. R., contains about 50,000 inhabitants, and is rapidly increasing in size. Our arrival here "three hours behind time" in railroad phrase, gives a short interval for inspection, and we are consequently hurried on board, and now fairly start on our ride through the wilds of the West. For many miles are evidences of cultivation, but before night closes in upon us, we see nothing but the unbroken level prairie, with the hills in the far distance. We pass Elkhorn, Fremont, North Bend, Schuyler, &c., all true western towns, each composed of a cluster of lonely-looking one story houses, the larger portion of which are conspicuously labeled "Saloon," "Restaurant," "Hotel," and other alluring and suggestive titles. The streets are plentifully strewn with the "modern signs of civilization," i. e., empty bottles and well-worn cards,—gentle (?) recreations, largely indulged in by the inhabitants of all such embryo cities. Another night's rest, and we awake to find the air clear and bright, as we stop at Sidney, to breakfast. Herds of Antelopes are now seen gracefully cantering over the hills; and we pass numerous large villages of Prairie Dogs, the little inhabitants running from mound to mound, or standing erect and greeting us with their feeble bark. Their occasional companion, the Owl, is seldom noticed. The large Jack Rabbit hops aside among the tall grass, and a fierce looking Coyote or Prairie Wolf, gazes at us as we pass

his lair. At Cheyenne City, the largest town between Omaha and Corinne, we have a short time to examine the dried specimens of plants surrounding us, but find nothing of interest, their beauty having departed with the rainy season. We are now at an elevation of 5,931 feet, on a broad open plain, the soil gravelly and abounding in marine fossils. This place boasts of several fine stores and comfortable dwellings, although in 1867 it consisted of but one house. In the distance are the U. S. barracks, with the "stars and stripes" floating from the flag-staff, beneath whose folds many a "boy in blue" dreams peaceful visions of the dear ones at home. We are now passing through Wyoming Territory, with Colorado just south of us, teeming with its rich ores and precious metals which time must more fully develop; and as night again approaches, reach Sherman, the highest point of the Rocky Mountains over which we pass. The altitude is here 8,235 feet. In the far distance dimly looming up, we see Pike's Peak and Long's Peak. The smaller vegetation is still confined to patches of coarse grass and plants, with an occasional shrub along the streams; and for the first time in many a weary mile, our eyes are rejoiced with the sight of a tree, and soon large clumps of a peculiar short-leaved species of Pine are neared. Passing rapidly by, we suppose them to be *P. edulis*, from the general appearance and small cones. At Rawlins, we stop for supper, and have an opportunity to examine the repulsive Sage bush, a straggling shrub, with a disgusting odoriferous quality, which is found all over this section of country, where nothing else can survive. The air is now unpleasantly impregnated with minute particles of alkali, and white flakes of the same are seen in many places. As we retire to our berths, we pass over the "back-bone" of the Rocky Mountains,—the great divide of the Continent; a barren spot with uneven desolate hillocks and sandy flats, entirely devoid of interest. At Carter's, on the morning of the 11th, we once more alight for a short time, and are soon after *en route* through the bleak region of Utah. In the distance we can distinguish pines on the mountain slopes, and a species of Poplar along Bear River; these, with a dwarf Willow, are the only ligneous forms that greet us. About noon, we enter upon the grass country, and soon after arrive at Echo Canon. We bid adieu for awhile to barren tracts, and standing on the rear platform of our train, feast our eyes on the grand scenery

by which we are surrounded. On either side, the mountains rise to a great height; in some places almost perpendicularly, in others with a gradual slope. We gaze spell-bound at the great red sandstone bluffs, all worn and seamed by many a storm, and see with startling distinctness, the forms of many a ruined castle, the gothic columns fretted over with rare mouldings and quaint designs, standing out in bold relief, one thousand feet above our heads. Through this deep defile, our engine rushes swiftly on with a continuous scream, the echos reverberating back from hill-top to valley,—through chasm after chasm awful in their depth, until we leave the cliffs behind, and out into the open vale again, where we stop at Echo City. Passing along the banks of the Weber River, we see no change in the vegetation, but pass a few Mormon settlements scattered on the mountain side, and in the fertile valleys, their little farms irrigated and tended with the great care. Soon we near the narrows of Weber Canon, similar in some respects to the last.

Many evergreens, possibly Red Cedar (*Juniperus virginiana*), and Edible-fruited Pine (*P. edulis*), with Willows, Poplars, &c., are growing here. Rushing past the "*One thousand mile Tree*," (an old veteran pine, which, by a sign board on its trunk, reminds us we are that distance from Omaha.) we again enjoy the most magnificent scenery imaginable.

The Weber river runs for forty miles down this deep glen, with the mountains on either side towering far above. We have barely time to glance at the "*Devil's Slide*," a wonderful freak of nature, formed by two ridges of rock, extending side by side up the whole length of the mountain slope. We rush through long tunnels and over high trussel-work bridges, with the great masses of rock above us on every side, and the river plunging torrent-like over its stony bed at our feet. We leave Weber Station behind us, a Mormon settlement of some note, with its little adobe cottages, and soon are abreast of the "*Devil's Gate*," where the river comes roaring and tumbling down among the rocks, through a narrow chasm between its high and massive sides. We glance at this sublime spectacle as we pass over fifty feet above the seething cauldron, and on once more to the open plain, until we arrive at Wintah Station. Here we leave the cars for a time, and take passage in the strong four horse coaches, bound for Salt Lake City, myself in an outside seat, where I can fully en-

joy the delightful view. On the one side, stretch away in the far distance, is the blue waters of the Great Salt Lake; on the other, the Wahsatch Mountains in all their beauty, rising grandly to a great height. Our road for several miles, is over a rough hilly country, winding amidst masses of Scrub Oak (*Quercus ilicifolia*), and Sage bush (*Artemisia*). The grain raised in this valley is of prime quality, and the straw exceedingly bright and handsome. We notice many a little orchard of thrifty trees, and clamber down from our perilous perching place, to obtain some luscious yellow Gages and Peaches. Apricots are here in perfection, and the Apples and Pear difficult to excel in appearance. At dusk, we pass by the "Hot Sulphur Springs" boiling up out of the ground in a thick volume, from the foot of a high rock; and the air for a considerable distance is impregnated with the disgusting odoriferous vapor. We arrive at our destination in the evening, a distance of 30 miles from the railroad; and the ensuing morning are up betimes, and ready for our excursion around Mormondom. The City is charmingly situated on a level plain, with the streets regularly rectangular, very wide, and especially neat and clean. On each side of every thoroughfare, runs a stream of pure limpid mountain water, rendering the air cool and pleasant, as well as providing an excellent sanitary measure for the preservation of health. Bordering the streets are also avenues of trees, principally of the *Common Yellow Locust* (*Robinia pseudo-acacia*), affording a speedy and refreshing shade to the low one story residences. The houses are generally formed of sun dried bricks or grey granite, and present a very cosy home like appearance. Around each, is the inevitable garden, well stocked with fruit trees, vines and flowers, whilst the luxuriant vegetables in many, gave evidence of well stocked larders. The scarcity of rain in all this region, is counterbalanced by introducing the water from the streets and irrigating the whole place. This is free to all, and the supply is ample. Timber and coal can be procured in the mountains, but is difficult of access; the former selling in the City at \$20 per cord, and the latter at \$17 per ton. The Tabernacle is an immense building, capable of seating 8,000 or 10,000 persons, and boasts of one of the largest organs in the country. From the roof, we had an extensive view of the surrounding district for many miles. The residence and buildings of President Brigham

Young are opposite, wherein are quartered his extensive household, and different officers of the tything fund. The markets are bountifully supplied with excellent meats of every description, and the display of fruits was really splendid in appearance, although somewhat lacking in fine flavor. The Peaches are principally seedlings, and the many fine varieties of clingstones seen here are unknown to our pomologists of the East.

In fact the larger portion of all kinds of fruits grown in this section, have originated in the vicinity. The Grapes are all of foreign parentage, of large size, and well colored, but not of best quality. As an offset, however, I have not noticed the work of a destructive insect since I have been in the place,—not a curculio mark, not a destructive fungus on tree or fruit, nor a borer or voracious caterpillar on tree or vine.

The following measurements and weights I noted down, as I passed through their market. Boston marrow squash 13½ pounds; cucumbers 2 feet long; onions (grown from seed the present season,) 1¼ to 1½ pounds; celery 3 feet high and ten inches in circumference (the plant). Potatoes of enormous size, mostly seedlings of the place; the Early Rose was here quite small and of poor quality, so we were informed. It is said in this valley, there are about 2,000 acres annually devoted to the cultivation of sorghum; 900 in apple trees; 1,000 in peaches; 75 in grapes; 195 in currants, &c., &c. The main portion of their fruit is dried, and stored away for winter use.

When I looked around upon this thriving city 25,000 inhabitants, hundreds of miles from civilization, in the midst of a desert country, and surrounded by savage tribes, I could not but admire the perseverance and undaunted courage of its founders. And were it not for the curse of its peculiar institution, hanging like an incubus around it, and threatening at any moment to be its destroyer, all would rejoice to do it honor. Why any Christian people that have been so bountifully blessed "in basket and in store" should so far overlook their obligations to the generous Giver, as to flagrantly transgress his laws openly and defiantly, is beyond my ability to discern. We turn our backs on Salt Lake City, with its plurality of wives, and return with pleasure to Wintah, whence we shall resume our journey once more Westward; but reserve the narrative for another letter.

Very sincerely, &c.,
JOSIAH HOOPES.

LANDSCAPE GARDENING.

BY CHARLES H. MILLER, PHILADELPHIA.

Read before the Pa. Horticultural Society, Dec. 7th, 1869.

The growing taste among our citizens for residences, when they can enjoy country life, beautiful scenery and rural enjoyments, induced me to select this subject for discussion this evening.

How to improve and adorn dwellings and grounds in the country, so that they shall afford an increasing pleasure, and continue to attract their occupants to remain, becomes then an important question, at once apparent to a reflective mind. I will, therefore, briefly point out some of the principles and rules of the art of Landscape Gardening, as a guide to those who are or may become interested in rural enjoyments.

The love of country is so intimately connected with the pleasures of home, that whatever leads man to gather around him the comforts of life, tends to increase local attachments, and renders domestic life more delightful, thus not only adding to his own comfort and enjoyment, but also to the happiness of others.

The art of Landscape Gardening may be divided into three separate classes: the Ancient or Geometric, in which one sees beauty in straight lines, regular forms and uniformity everywhere; in the Picturesque, where one enjoys a certain wild and incomplete natural harmony, so delightful to lovers of country life; while the Beautiful furnishes the highest and most perfect development of art in modern Landscape Gardening.

The Ancient, or Geometric style of gardening, is not so much an element of interest in this country as it should be, for it must be confessed, that there is much to admire in its artistic and regular forms; in its long and majestic avenues; in its perfectly straight and handsome walks and promenades, and in the exquisite shapeliness and symmetry of forms; and because of its polished and domestic air, which readily admits the introduction of architectural embellishments,—of vases, fountains, and other harmonious accessories.

The Beautiful and the Picturesque are the modern elements that enter into the composition of our Landscape Gardening; and although the Beautiful and the Picturesque may be considered quite distinct, yet it by no means follows that they may not be combined in the same landscape, by artistic planting. It is often so seen in nature, and in landscapes of large extent they are generally found thus harmoniously combined. It

must, however, be remembered that while the Landscape Gardener is an imitator of nature, yet he should never attempt her on such an extended scale as to be incapable of the same extended harmony and variety of expression,—consequently where a place is of limited extent, and only admits of a single phase of natural expression, the effort should be to heighten or make that one character predominate: thus adopting either the Beautiful or the Picturesque, in preference to a confused combination of both.

When, however, a private or public place of large extent comes within the scope of the Landscape Gardener, he should embrace the opportunity, and give to each style a separate and distinct expression, suitable to its general character.

The dwelling being the most important, and consequently the leading feature, the choice of a site is a matter of some consideration. In fact, too much attention cannot be given to the matter of location, and other matters connected with the choice of a suitable spot to place the house. In most cases, and where it is possible to accomplish so desirable a result, a site should be selected where there is some wood or a few already grown trees upon it. It is better to forego some other fancied advantage or yield a little in the extent of prospect, in order to accomplish this important matter; for I have generally found that those who have paid little attention to this subject, but commenced improving on a bleak, bare location, have been among the first to lose courage and faith in country homes. Knowing this to be so, I earnestly urge this fact on the attention of those interested in rural improvements, for it seldom happens that the Landscape Gardener is called in before it is too late to remedy this mistake, as every one fancies himself perfectly acquainted and able to judge of his own wants, and consequently endeavors to plan and arrange his own residence. Having little practical knowledge and few correct principles for his guidance, it is not surprising we so often see mistakes, and in great waste of time and money. Even those that are most familiar with the subject oftentimes find obstacles in the practice, growing out of the difference of soil, climate and other influences, which have to be overcome.

The improver who combines with practical knowledge the refined taste to detect the true character, and builds, plants, and embellishes as he should, constantly aiming at perfection, will soon arrive at a far more satisfactory result than

one who works at random. The latter may and often does succeed in producing pleasant grounds, and certainly do add to the general beauties and appearances of the surrounding country; but the former, working with taste and correct principles of the art, will not only attract the attention of the general public, but will command the admiration, and impart a lasting pleasure to the most refined and cultivated taste.

PLANTING.

Nothing, at first thought, would appear more easy than to arrange a few trees in the form of a natural and beautiful group; and to one that knows how to do it, it is certainly an easy matter; yet experience has shown that the generality of persons, in their first attempt at ornamental planting, make ludicrous mistakes, and encounter such mishaps, that generally ends in confusion.

In the disposition of trees and shrubs, either in that of the Geometric or in that of the Natural system of planting, great care is required in the selection, and in the arrangements of the varieties. The planter should be thoroughly acquainted with the different varieties of trees and shrubs: as the great difficulty in planting so as to produce the pleasing effect desired, consists chiefly in selecting the kinds that are to succeed each other, in color of bloom and foliage, and at the same to arrange them with due regard to height and form, maintaining that requisite amphitheatre-like arrangement, from front to back of plantation, as to present to the spectator, in walking along, the appearance of a beautiful symmetrical outline. In doing this, however, care must be exercised so as to preserve that individuality of form so essential to produce that pleasing effect, which is the object aimed at.

The form or plan of the shrubbery should be, and generally is, a winding border, with handsome curved outlines, and generally accompanied with a walk,—sometimes with a walk on both sides, or passing through or along its front. Shrubs are best adapted to the embellishment of small gardens and pleasure grounds, that do not admit trees of larger growth; there they can be used to great advantage, and although they do not possess that grandeur of form and outline as larger trees, it is folly to plant the latter in places that do not admit of the necessary room for their development.

The Shrubbery is often a matter of utility as well as of ornament, and is often made for the purpose of obtaining an agreeable walk to some

particular place or scene, such as an elevated spot, where the best views of the surrounding country can be had, or leading to summer houses, rustic seats, grottoes, and other places of especial interest; and of course the most desirable is one where both of these objects are combined, as in that case it gives the greatest satisfaction.

When used for the purpose of screening the outhouses or vegetable garden from the view of the house; for sheltering the latter or the garden; connecting or separating the garden from the lawn and flower-garden, the shrubbery then becomes useful as well as ornamental; and when arranged and planted in an artistic and tasteful manner, with a judicious admixture of choice and select dwarf evergreens, can be made highly attractive.

In closing these remarks, I will just say, that I think the system of Landscape Gardening called the Beautiful, which is really a mixed or transitional style, partaking partly of both the Geometric and Natural systems, is the best.

In the former, in which is combined that artistic uniformity and formality of the one school, with the freedom and natural grace of the other; where the former, consisting of terraces, straight lines and level walks, and other artistic forms which it is necessary to adopt in the immediate vicinity of the House, is gradually diminished, until it entirely disappears, and the Beautiful is looked upon in all its blended natural and artificial loveliness.

MULCHING.

BY ISAAC HICKS, OLD WESTBURY, L. I.

How often have we regretted when passing through the country, to see the great waste of a good thing, when a fire in the field is sending its smoke to the annoyance often to the travellers and others. It is but a heap of rubbish you say, a lot of weeds, potato stalks or corn stalks, that were in the way. There is that row of trees along your lane or around your building, that would have been highly benefited if you had put them as a mulch around the trunks. There are those pear trees growing in the grass, and the soil packed hard and dry over the roots, that would have rejoiced in the protection this trash would have given, and would have doubled their growth, and borne finer fruit next year. You planted some desirable shade trees may be, by the roadside, and you deserve the thanks of the community for so doing, but the soil is poor as

is too often the case, and, if, although it may be rather unsightly, you would give them a mulch of coarse manure, or even these weeds you are burning up, how much sooner they would be objects of beauty, and rejoice the hearts of all lovers of beautiful and thrifty trees. And further, my friend, is the apple orchard so thrifty and productive that a mulch would not improve it? We have seen barren knolls produce a fine growth of grass where the potato tops and weeds such as you burn up were strewn. The prudent farmer will not allow this waste, when his trees and his orchard if not kept plowed, would be so much benefited by it. If this rubbish which too many thoughtless persons burn or neglect, were thrown around newly planted trees, not one-half would die that now do. Some fifteen years ago we planted a number of quince trees, part of them were put in the fruit garden and kept cultivated, about one-third were planted in grass land among apple trees. Continual cultivation so disturbed as we supposed, the quince tree roots, that those in the garden are now dead, while those in grass land, and mulched with coarse manure and other things enough to partially keep the grass from growing, are all living, and are quite healthy and productive.

QUESTIONS FOR DR. HOUGHTON.

BY PARKER EARLE, SOUTH PASS, ILLS.

Dr. Houghton is justly regarded as an authority in Pear culture, and his boldness and energy in planting and managing one of the largest pear orchards in the world, challenges the admiration of all lovers of Pears. But his interesting paper in the November number,—while it emphasizes many truths, yet contains so many questionable statements and ideas, which seem to me calculated to discourage and mislead, that I venture a few inquiries concerning them.

The leading theory of the Doctor's paper appears to be, that all Pear culture is a failure which does not produce very fine "specimen," or exhibition "Pears" as the weight of a crop. Supposing that not only fair and shapely, but very large Pears are meant by these terms, I ask if it is essential, that the bulk of a crop of Pears for the general market should be of extra size or overgrown; and if that orchard which produces a moderate crop nearly every year of fair sized, well formed and flavored Pears, is to be regarded as a failure? My impression has been, that a majority of consumers, prefer lots

of well grown fruit of medium size, whether of pears or apples, for general use. The "big fruits" are a nice thing for creating a sensation in the exhibition, or for a few fancy dealers as an advertisement; but if Pears are even to become one of our staple fruit crops, they must be grown for the taste of the general market—for the great mass of plain comfortable lovers, who will regard fancy sizes less than substantial excellence at a moderate price. Our object should be to grow pears in such quantity and quality, as to supply families by the bushel or barrel, just as apples are sold in our markets. Now I question, if your sensible Philadelphia "pater familias," would not prefer a barrel of clean fair-sized Doyennes or d'Anjous, to the very largest specimens that could be grown of those varieties. And I am certain that our first-class hotels, like the Continental and Fifth Avenue, and a large share of our retailers, prefer lots of bright-faced shapely fruits of medium size only, to the "magnificent" specimens which often adorn our exhibition tables; and for the simple reason, that a barrel of Pears weighing a pound apiece *count out* very badly. And so I inquire again, if all the writing and the talk, which encourages that system of extravagant culture, which only can produce the fancy Pears, and which can only show but "twelve or fifteen dozen Pears of one variety" of "respectable fruit," from "the most celebrated orchard in America," is not very unhealthy in its influence over the horticultural community, and very sad and pitiable in its results, as Dr. Houghton's accumulated testimony shows?

But does the Doctor expect us to believe the statement, that "on standard trees, even in their best condition, scarcely half of any crop is marketable at one dollar per bushel?" The remark is certainly not true at all of any respectably managed Western orchard. As low a price as one dollar per bushel, for the *poorest half* of any crop from standard trees, would surprise any of our Southern Illinois growers, and I fear disgust them with the dealer who should make such returns. And while it may be true that "the finest Pear orchards in the United States,"—which are hereby acknowledged to be located "near Boston or at Rochester," with possibly a few around Philadelphia—"cannot produce twenty-five dozen specimen Pears of any one variety, (omitting Bartlett and Seckel,) without completely stripping the stock of all its good fruit; (the eastern Pear growers must be men of more

than puritan heroism, to hold on to such a business!) yet that remark will not be found correct if applied to some Western orchards, which make no pretensions to being the "finest" in the country. I could instance the Duchess d'Angoulême, the Belle Lucrative, the Beurre d'Anjou and others, as having often contradicted such an assertion. And does the Doctor forget that California has this year sent "specimen Pears," not by the dozen, but by the cart-load, to the Chicago Market?

While all advocates of moderate culture, or of *culture in grass*, will readily admit that the largest specimens will be produced where the ground is manured and often stirred, yet they claim a much greater certainty of having more bushels of equally fair Pears, with equal flavor, if not so large. The hint that grass cultivated trees necessarily bear "small scrubby Pears," is not quite a fair one. They need not be small if properly thinned, while the scrubbyness or scabbiness is due to fungus and insects, and not to the system of culture. A single fact here, which I will ask the Doctor to explain. I, this year had Belle Lucratives on trees with their first crop, and which were growing finely under "good culture," and nearly one-half of the Pears on these trees, numbering several hundred, were cracked and unfit for any use; while on older trees, which had stood in grass and weeds for two or three years—the fruit though smaller, was entirely sound and fair. In a neighbor's orchard, I observed the same facts. It looks as if the powers controlling the spread of fungus did not understand the Doctor's theory!

My practical conclusion is, that we should seek to observe those conditions in Pear orcharding, which will give us the greatest quantity of regular crops of fair clean fruit—great enough in quantity to sell by the barrel, rather than by the dozen, and good enough in quality and appearance to please the sensible majority of consumers. Let us discourage all this misleading nonsense of exhibition, display and talk, which is fast corrupting the public to a belief that all fruit to be worthy must be *big*. Let us rather promote the understanding, that Doyenne and d'Anjous are better than Duchess, and that Belle Lucratives and Lawrences have far more value than Vicars or Uvedales St. Germain, hundred for hundred.

GRAPE CULTURE IN TEXAS.

BY S. B. BUCKLEY.

The native species of grapes in Texas, show that a large portion of the State is well adapted to grape culture. Now nearly all of its hills and valleys abound in native grapes, a description of which I gave in the Annual Report of the Agricultural Department at Washington, for 1861.

Grape culture is now in its infancy in this State. Previous to the late civil war, only a few grapes were cultivated in some few gardens. Since the war, a few persons have planted grapes for wine and market. They report favorably, and continue to plant more of others. Seeing the success of these, their neighbors begin to plant grapes also; and soon Texas will rival California in good grapes and wines. Especially is Western Texas suited to the grape. Its dry summers and clear skies are unfavorable to the rot, and other diseases to which the grape is subject during wet seasons in other countries.

The experience of Europe and America in the growth of the grape, shows that a hilly or gently undulating region, with a dry and moderately fertile soil and warm summers, not too moist, produces the best grapes and wines, where they have the proper care and the proper culture. We have these conditions in Western Texas, in its hills, soil and climate.

Not but that fine grapes and excellent ones may be produced in valleys and on plains. It is highly probable that future experiments in the growth of the grape will prove that certain species of grapes thrive best in valleys and on rich river bottom lands, also on the rich prairies of the West and Southwest. The Mustang grapes of Texas grow best in such places, and is seldom found in a thriving condition on hills. Some of the largest vines of the native *Labrusca* which I have ever seen, were growing in rich river bottoms, and loaded with large fruit. Now as the Isabella, Catawba and other varieties in cultivation are said to have been derived from the *Labrusca*, why should not they do best in fertile valleys? Again, the parent of the Isabella is said to have lived in the warmer portions of one of the Carolinas—not in their mountains—then why should not the Isabella grow better at the south than at the north? But it does not; on the contrary, its culture has proved a failure throughout most of the Southern States.

To return to Texas—to Western Texas—where

many Germans have recently engaged in grape culture, who report that others of their countrymen will soon leave Europe to engage in the business here. The European experiences of these men in the culture of the vine, may be serviceable to them in this country; indeed their careful industrious habits will certainly make them successful grape growers here.

A few more words regarding the climate of Western Texas. It seldom rains here from the middle of June until in Autumn. That is during the hot summer and early fall months, we rarely have long continuous rains, but only showers at rare intervals. This season was an exception: when we had a long rain during the first days of July, which caused rivers and streams to overflow their banks and do much damage; but such a time was never before known to our oldest inhabitants. On the contrary, dry sunny weather is the rule for summer and autumn in Western Texas, and such weather is very favorable for the growth of some species of grape, and the making of choice wines.

The elder Pliny informs us, that the year before Christ one hundred and twenty-one, was remarkably suitable for the growth of the grape and the making of the best wines, on account of the great heat of the autumn. The wine made this year was called Vinum Opimianum, from L. Opimius, who was consul that year. Some of this wine of that year's vintage, was carefully kept until the time of the elder Pliny, nearly two hundred years afterwards. He says it was reduced to the consistency of rough honey and like other very old wines, so strong and harsh and bitter, as to be undrinkable until largely diluted with water. Such wine, he adds, was useful for flavoring others, by mixing small quantities of it with them.

Some of the European varieties of grapes do very well at Austin and in other parts of Western Texas, such as the Black Hamburg, the Golden Chasselas, the Burgundy, the Esperione and others. As yet they have only been cultivated to a small extent in gardens. It is not probable that they will be as profitable for field culture as the American varieties, nor is it likely that the attempt will be made to cultivate them beyond the garden.

The American varieties, (at least some of them, for there are many exceptions,) do very well here, such as the Delaware, Concord, Diana, Herbe-mont, Hartford Prolific, Isabella, Ives' Seedling, and some few others which have been tested and

found to grow well and bear good fruit. The Isabella and Catawba are both failures here.

In Eastern and Southern Texas, it is probable that the Scuppernong will prove the most profitable for cultivation. There its parents, the *Vitis vulpina* is indigenous, and there the climate and soil are similar to many other portions of the South where the Scuppernong is successfully cultivated. The Scuppernong needs no pruning; is said to be a very constant bearer, and to produce enormous crops—grapes sufficient to make fifteen hundred gallons of wine per acre; nor is it liable to the attacks of insects; besides, its wine is said to be superior to any other made in the United States. All this is claimed for it by those who have cultivated it for many years, and who have informed us of their success in the columns of the Agricultural Press at the South.

Here, several varieties of grapes ripen in June, such as the Hartford Prolific, the Delaware, etc. These we can send north and sell before northern grapes are fit for use. This is an important item in favor of grape culture here and in other parts of the South.

FRUIT GROWING.

BY J. H.

The experience of Dr. Houghton in Pear culture, very much resembles the trials and difficulties of school teachers. We have frequently met with young and inexperienced persons, who having been drilled in a normal school, and read the best works on school teaching, believe they can manage a school with as much precision as a machine shop; but alas it is not true—Young America is rebellious, and disappointments mar the beautiful vision of human perfectibility. So it is with many of us fruit growers, full of ardor when we start, and full of theoretical knowledge, we intend to grow our fruit according to the rules of science; and we shall have all of our fruit like those we observe on the tables at our fairs. But we are all born to disappointment at times, for the seasons and the insects are not at our command. The invisible fungus spores blast our bright prospects, and the frost king nips our hopes in the bud; but we have read the Doctor's essay with onesatisfaction, and that is, as we now think, the cause of our moderate success, was not altogether in exposure to ocean winds or Long Island soil or climate, for others have the same failures to record, and the fruit fit for the exhibition table, rewards but seldom their toil and skill. We have pears in grass, and pears in the garden and orchard, plowed and tilled, and there is but little difference in either one, and the victory belongs exclusively to neither.

EDITORIAL.

PEACHES UNDER GLASS.

We notice a paper on forcing Peaches in an English contemporary recently, in which the writer attributed many of the failures to the fact that so many growers expected to get "Peaches by the peck." We know that, generally speaking, we are not as successful as our English friends in any kind of gardening under glass, because there are not the same inducements for the best gardeners to continue in private establishments, as there are in England. Yet if it is fair not to expect Peaches by the peck in England, our fruit growers under glass, have room for encouragement, for we have seen them grown in this way *by the bushel*.

It is to be regretted that Peach houses are not more common in our country than they are. The tendency of our age is to lose sight of the pleasures of gardening, and to calculate it as a mere question of dollars and cents. In many cases a beautiful crop of Peaches would be carefully measured and priced, and if found to cost a hundred dollars, and the same could be bought for ninety-nine in the market, it is a chance if the Peach house does not get converted into a bowling alley. To our mind, there are few things more beautiful than a house full of Peaches in blossom in early spring,—opening even before the first spring violet dares to peer above the snow. This is profit enough to a true lover of natural beauty. The Peaches are actually thrown into the bargain.

Peach houses cost so little. A lean-to is far the best, and the best aspect is the southeast. No sashes are needed—the now common fixed roof being as good as any. Ventilation may be provided for by openings in the back wall, which will cost less than if framed in on the glass face of the house. The pitch should be steep—for a Peach house, we would have an angle of 45° which is very sharp. The floor should be paved with brick, to give the whole a neat appearance, and to stand the tubs level. The plants should be in tubs, boxes or pots, and need not be over eighteen inches in diameter for very large trees, and with annual top dressings of rich soil, they will stay fruitful in these for several years. No fire heat is required. In very cold climates it may be as well to put the plants in a barn or shed, and pack litter in about the tubs to preserve the roots; for it is found that in cold dark places frost will not injure the buds,—and bring the plants in to force about February. But when-

ever the temperature does not fall below zero, the plants may remain in their regular positions in the houses, and allowed to come on whenever they find the natural circumstances call them to do so. Here they may remain till the fruit has stoned and swelled to nearly their natural size, when they will be safe from injury from the curculio, and be plunged in the earth up to the rim of their pots in the open air. The fruit is much better flavored in this way than if suffered to ripen in the fruit house. The inferior flavor of house grown Peaches is indeed an objection sometimes made against them.

Peaches are often planted in the ground under glass in this way and we know of some instances where they produce by the bushel. An advantage is, that they require no care in watering. But it is not so easy to keep them clear of insects, and not to go deeply into the matter in this paper, we may say in short, that the plan is not so pleasing or satisfactory generally as pot culture.

We think one reason why these things are so much neglected, is because people think it costs so much to build the houses; but very good structures for the purpose can be erected for from five to ten dollars per running foot, according to the amount of ornament one likes to have displayed on it.

Of course to have the best and most satisfactory results, an excellent practical knowledge is required; but very good success can be had even with clumsy assistance, if there be some intelligence to occasionally guide it.

SUCCESSFUL PEAR CULTURE.

A friend, in a late contemporary, hints that we have done injustice to Pear growers, when in our recommendation of Dr. Houghton's essay to the thoughtful consideration of our readers, we virtually admitted that Pear growing was a failure. He thinks he does know a few, at least one, who can grow Pears well, if we do not.

We think it unfortunate that in the discussion of these broad national questions, they should be taken up in any other than a generous spirit. The discovery of truth is of far more consequence than the overwhelming of an antagonist; and we are quite sure that though those who glory in the latter feeling, may think that in our expression we "said" nobody can grow Pears, those who entered into the spirit of our remarks only, know that we imputed no such thing. No journal has given more credit, if as much, to the great success of some of the Boston Pear growers, as we

have,—and in the same number of the magazine as the expression alluded to occurs, we published a report of the remarks of the editor of this magazine at the discussion on Dr. Houghton's essay, in which the great success of many growers, in some parts of Pennsylvania was referred to. Certainly we know of many successful Pear growers,—but for all that our readers know, that, taken as a great public question, Pear growing has not been the success which the few, much less the one, has found it.

We have frequently to regret the disposition we see to dispute in this narrow way, instead of taking a broad view of the writer's meaning. Returning from our long journey last summer, we happened to say that in growing strawberries in hills, Mr. Knox added many incidental practices. That we had seen people who pointed out beds on "Knox's" plan as "a failure," when it was evident they did not understand what that system was. Indeed, that the Hill system, as practiced by Knox, we did not see any where West. Whereupon we find in the *Rural World*, that the "Editor of the *Gardener's Monthly* says he saw no strawberries on the Hill system in the West,—he didn't see much." Perhaps not. But the misapprehension as to what we did say is of some consequence.

OUR NEXT COLORED PLATE.

Our frontispiece, given in the December No. for the volume just past, has received the commendation of many of our friends; but we think that, although adding considerably to the attractions of the work, it is not by any means second in usefulness to the complete Index given with it. No one should fail to preserve and bind the volumes. They form a complete Encyclopædia of the progress of American Horticulture. We would again refer to the publishers' announcement, that colored plates will be given in alternate months; no expense will be spared to have these in the highest style of art. They are given freely to subscribers as the very best premium we can offer to them as a recompense for their endeavors to add new names to our list. They will only be furnished to those who subscribe for the whole year, as the cost of these plates is as much as that of the number without them. They are really, not pretentiously, given away.

We have now in hand for our next number, a plate which we think will be as well received as our last, which was of especial interest to Fruit

growers. This one will be looked for by all those interested in beautiful hedge plants.

IMPROVEMENT OF ALPINE STRAWBERRIES.

The attention which has been drawn to the Alpine Strawberries, in consequence of the introduction of the one known as "Mexican," will no doubt result in the improvement of a class which has too long been neglected. The strawberries common in cultivation were first introduced into Europe from America; one portion from Virginia, and another from Chili. It may seem strange that a plant obtained from so far south as the Chili Strawberry, should prove hardy in the highest northern regions, but so it is. The probability is that it is geographically an immigrant from a northern point, as many other things have been. It is indeed not uncommon for plants to follow mountain chains far down into hot regions. Our Linden, Ash-leaved Maple, Magnolia grandiflora, and others are found extending down to the peak of Orizaba,—slightly differing perhaps from northern forms: but little more than these differ from one another.

The *Fragaria vesca*, or European wood strawberry has never had much attention given to it, chiefly because it is not as large as the American. There is always a tendency to admire big things—a tendency which is all right when we have good qualities with increased size. There is also a feeling that this strawberry will not vary from seed; but will always reproduce itself exactly from seed, and therefore any improvement in it is impossible. That this is a mistake is apparent, from the fact that nature has herself furnished three distinct forms. The common English wood strawberry, the *Hautbois*, or higher wood strawberry, and the Alpine, or highest elevation strawberry, which are all forms of *F. vesca*. Then we have white and red Alpines, and if they vary in color, they must certainly vary in flavor, for these two variations always go together.

But those who think there can be no improvement in these, say, that they will not hybridize together as other species will, and there can therefore be no improvement at any rate, beyond a very limited circle. Our own impression is that there is really but one species of strawberry in the whole world; and the reason why so many specific names have been given to so many forms, is because botanists have not been

acquainted with the laws of development, and have therefore been unable to distinguish between changes wrought by external influence, and those which depend on the plants own innate laws of form. In all the known species of strawberry there are no characters to distinguish one from another, that any seed grower may not find in a greater or less degree, in any bed of strawberry seedlings. Therefore there is no reason for distinguishing any of them as distinct species,—nothing but divergent races of one specific type, and no physiological reason why they should not any one of them, easily hybridize together.

That this view of the science of the matter is correct, Hon. Marshall P. Wilder has proved by experiment. He has Alpines, Hautbois and Virginians, so hybridized together, that though seedlings from each have been raised, it is scarcely possible to tell to which each plant belongs. We saw these plants in six inch pots last fall on Mr. Wilder's grounds, and we certainly never saw more evident crosses. There were some plants of Hovey seedling which had been impregnated with pollen from the Royal Hautbois, also some Wilson and Napoleon III., with the same male parent, and the proof that the cross impregnation had been really effective, was apparent from the appearance of the leaves. Though varying between Hautbois and the scarlet varieties, no one could detect anything like Hoveys, Wilson, or Napoleon III. in the foliage; indeed there were far more indications of the male parent than of the female. We regard these experiments of Mr. Wilder highly interesting,—not only because of the solution it gives to the problem, as to whether these distinct races will blend together; but as very promising of something good.

Mr. Wilder had a pretty good collection of these Alpine forms, amongst others the Red Alpine and the Mexican Everbearing Alpine, and examining them together there, we both concluded, as the writer did on another occasion, that they were distinct varieties. It may be suggested that many may be unconsciously led into error in deciding the identity or difference between two forms of Alpine, by comparing in their minds the leaf of an Alpine, with the leaf of an ordinary strawberry. We know in judging of our common forms of strawberries, how hard it often is to tell one form from another—not only strawberries indeed, but apples, grapes, or other fruits. One will tell you that there is no

difference between Walter Grape and the Diana, or none between Romeyn Seedling Strawberry or Triomphe de Gand, and yet other equally good authorities say they see abundant differences. It will be so with these Alpine races, amongst one another differences will often be apparently minute, and some acquaintance with their mode of variations will be necessary to distinguish them. To one who has no practical acquaintance with the variations of the common strawberry, no doubt any bed of strawberry would look like another, although the pomologist would wonder why the dullest apprehension could not tell the difference between a lot of Tri-de Gands, and the Shaker Seedling, and it will be so with these Alpine forms—only those who will give them practical attention, and find minute differences, which the common observer would fail to appreciate, will be apt to make much progress in improving the Alpine race.

IMPERFECT POLLEN.

A few years ago the editor of this journal, in an address at St. Louis, remarked that in the catalogue of Pear diseases, "general debility" should be a prominent one. To this was referred the fact that many Pear blossoms which open do not mature. Dr. Horatio Wood subsequently showed by microscopical examinations that these unfruitful Pear blossoms, though apparently perfect, had no pollen in the anthers. We attributed this to the debility before referred to.

Recently a German naturalist has discovered that the pollen of the wild Blackberries of Europe have also pollenless anthers. He uses the fact to account for the numerous forms of wild Blackberries. He says they are hybrids between original species—mules—and that is the reason they have no pollen. This is as interesting as the previous discovery of Dr. Wood. Dr. Wood's observations on the Pear, however, does not support this use of the facts, as no one would say the Pear has hybridized with any other species. The apple is its "next friend," but it will not enter on any intimate association with it.

In connection with this, we may say, that on our grounds is a large Beurre d'Arenberg Pear, perhaps 50 years old, which is apparently very healthy, and always bears a crop. Usually we know this Pear does not come in eating condition till December, yet they are quite tolerable in

October, they will however keep till December, but always rot at the core first, no matter how much attention is given to their preservation. The interesting point is, however, that the seeds

are never perfect, and it is quite likely that this deficiency of fertilizing power, together with the early and imperfect maturity, are all due to the general debility we have before suggested.

SCRAPS AND QUERIES.

SUBSTITUTE FOR THE MAHONIA.—"Green," Baltimore, Md., asks: "In my opinion there is nothing more beautiful than the common Holly-leaved Berberry, with its golden yellow flowers and green leaves in early spring; if the plants are any way exposed to the wind, the foliage gets shabby, and detracts much from the beauty of the plant. Is there any other variety of equal beauty, but hardier?"

[The Japan Berberry is hardier—very much hardier, and in its own way is beautiful, but we think it will never be substituted for the Holly-leaved. We know of nothing to take its place.]

PLANTING LARGE ONION SETS.—J. M., asks: "Last spring I received for trial from the Department of Agriculture, a packet of seeds of the 'Wethersfield Large Red' Onion. They were sown early, and grew well; on taking them up lately, I find a great many of them are very large for sets, much larger in fact than those usually sold for such in stores.

I am told that I should not plant the large ones next year, as they will surely run to seed; but being led by the name to expect something large, I thought I would ask your advice before acting. The largest of them are probably 1½ inches in diameter. Whilst writing on Onions, I may state, that an interval of two weeks in the planting of some sets made a difference in size of nearly one half, so much does size depend on early planting of them."

[Large Onion sets will go to seed; but if the flower stalks are broken off as soon as they are visible, pretty good Onions will result for all. The smallest sets are however always the best.]

HARDINESS OF SEEDLING.—J. T. L. McGregor, Iowa, asks: "From seedling Pears, in what time can I expect any fruit?"

Don't you consider these seedlings hardier than grafted trees?

It is very hard to raise fruit here, except Siberian Crab Apples, so we must go on the hardest.

I planted two acres in grapes last spring, mostly Concord as an experiment, but shall make it my business and only business, to have a fruit garden."

[Seedling Pears will bear in 12 or 15 years. We think most of our regularly grown Pear trees are less able to resist disease than a seedling never grafted; but a tree grafted from a thoroughly healthy stock is as good as the seedling can be.]

ALPINE STRAWBERRIES.—Mr. Campbell says in the *Small Fruit Recorder*, about some seedling Alpine Strawberries:

"The originator had planted seed of the old Alpine in a boggy corner of his garden, which had been filled up with rich earth some eight or ten feet; and he produced both plants and fruit so extraordinary in size, that he really believed he had a new and valuable variety. As soon, however, as the plants were removed to ordinary garden-soil, with common culture, it degenerated into its normal character, and became simply the old Red Alpine;" and the Editor of the *Small Fruit Recorder* adds, "there is some difference of opinion between Mr. Campbell and Mr. Mechan."

No difference at all. Rather we quite agree with Mr. Campbell.

It served the fellow right. Why not be satisfied with his fruit of "enormous size" in boggy ground. What did he want to plant them in ordinary garden soil for? Served him right, we say, or any body else who, finding they grind excellent corn from the mill-race, move the machine to the top of the hill, and then complain that they have no water, and that a grist-mill is a bad business. Whether Mr. Whiting's Strawberry is old or new, don't matter much. If "old kinds" can be made to produce such enormous

crops as we saw at Dundee—such superb fruit as we ate at Dundee, it is worth \$3 per dozen to know how to do it. If one man can't do what another man can, we say again "it serves him right."

CLASSES OF ROSES.—A. R. S., Clifton, N. C.—"I notice in the florist's catalogues many classes of Roses. I supposed there were but two, those which bloom only in summer, and those which bloom several times a year. How are the several classes distinguished? And what is the object and use of the distinction?"

[There are two leading classes, as our correspondent says. June flowering and everblooming,—the others are mere subdivisions, and have their uses, as the plants of the sub-sections are of different habits, and sometimes require different treatments.

The so-called Hybrid Perpetuals or Remontant for instance, are the large Cabbage or June Roses which have acquired a fall blooming habit. These June roses have a roundish receptacle or termination to the flower stalks under the flower, and are called in the lists, Hybrid Chinas. The Hybrid Perpetuals can be readily distinguished from these when in flower, by this receptacle being usually pear-shaped. They do not generally flower very freely in fall, but their large sweet flowers and hardy character, render them favorites. Of the fall flowerers there are four very distinct and popular classes: The Chinas, the Bourbons, the Teas and the Noisettes. But these have become so mixed up, that sometimes it is not easy to tell which is which. The Noisettes do not usually possess very high fragrance, and what they have is of a musky smell. They usually bear their flowers in panicle bunches at the end of the vigorous summer branches in much the same way that our fall bearing raspberries do. They flower a little in summer, but their greatest glory is about the fall of the year. They are mostly rampant strong growers. The Bourbons approach them, but do not usually grow so rampant, and they flower much more freely, earlier in the season than the Noisettes. The leaves are usually rounder and of a more glossy hue, and while the Noisettes are usually white, or of light shades, the Bourbons are usually crimson or dark rose. They have little fragrance, nothing much but their beauty and free-flowering habit, and elegant foliage to recommend them. The China Roses are generally dwarfer than either of the

other two; flowers very free, and the foliage long and slender. They have a fair mixture of light and dark color,—are amongst the earliest to flower, and are generally able to furnish the "last Rose of Summer" to any pathetic poet who may be looking for a theme. They are not highly perfumed. They are tolerably hardy, ranking in this respect with the Bourbons. They have little fragrance. The Tea roses, have somewhat the characters of all the other classes. Some of them are small and delicate, others are rampant growers; sometimes they grow in bunches; but generally they are medium in vigor, and have solitary, large and full flowers, with a waxy texture of the flower stalks and calyx leaves; and a delicious perfume. They flower very easily under glass, and are very popular for growing in pots for winter blooming. They are rather tender.

There are other classes, but these are the leading ones.]

GRAFTING APPLES ON THE PERSIMMON.—R., Macon, Geo.—"I have been informed that these apples can be made to grow on Persimmons. I can get plenty Persimmon stocks and should be glad if you can give me any further information."

[The statement originally appeared in our journal, from the pen of a valued correspondent in Florida, that this could be accomplished, and the object gained was a greater power of enduring a hot climate. But we believe our correspondent was misinformed by others, at least we have received no confirmation of the fact that such grafting can be effected.]

PASSIFLORA TRIFASCIATA.—P. L. N., Nashville, Tenn., says: "In your *Monthly* of November, in referring to the *Passiflora trifasciata* as exhibited by Robert Buist Sr., at the late exhibition, you remark, 'we have not seen the flower, but suppose it will have also an interest with all others of the genus.'

I have in my stove, a beautiful and well-grown specimen, trained on an oval trellis, and is in flower at this time, though not so profusely now as it was last summer. It was exhibited by me at the September display of the Tennessee Horticultural Society, and proved to be one of the choicest as well as most dazzling novelties in the floral department. Mr. Robert Buist, Sr., sold it to me about a year ago. In a recent trip through the North, I visited many private and public

conservatories, but failed to see this beautiful plant, save at the extensive establishment of our friend Buist. It is, indeed, *all* that you claim for it, and perhaps *more*, from the fact that it has *flowers* together with *foliage*. I presume, however, you can form no opinion of its size, shape or color from the one enclosed to you. I will simply *remark*, that it is white, and smaller than the bloom of the well known Passion vine. If grown where there is plenty of room in a stove, I do not believe anything would be prettier."

CRATÆGUS CORDATA.—J. H. C., Athens, O.—Sends specimens of this very beautiful Hawthorn and says: "I will send a small specimen of a red Haw that I found near this place. It is a Cratægus, but as the leaves are off, I can't tell anything about it. The fruit was very beautiful, red and very attractive, and quite good to eat—very soft and buttery. They may not retain that when they reach you, but to my taste they were fine. I will send an old leaf and a thorn and a bunch of the berries. How long they have been ripe I know not. The tree is about 12 feet high, and has nothing different in appearance from a common thorn, except the fruit, which may not be new to you."

DR HOUGHTON ON PEAR CULTURE.—I read the *Monthly* of November containing Dr. Houghton's article, and had a quiet laugh to myself; had you, Meehan, been by, it would have been a broad one. To day comes the *Journal of Horticulture*, with a funny taking up of the Doctor's items as all in good faith and honest belief in expression. And I had another quiet laugh; because on reading his article I bethought me of Prof Turner, as well as of acts of my own—writing ideas and thoughts, asserting opinions and views, for the mere sake of drawing out others, and thus gaining information, that by the ordinary process of a polite request, could not be obtained. Now, to-day, comes the *Monthly* with Dr. Houghton's sequel to his novel; and I have another and this time a broad laugh in thinking back, what a month of cavil and questioning has been about nothing. Dr. Houghton in his sequel, says he cultivates with a plow. If he will allow a suggestion, I would suggest to him, the use of Holbrook & Small's Cultivator or Horse Hoe, as the only thing needed in his grounds. More rapid in its execution, stirring the soil

quite deep enough, and effective in clay or sand lands.

ADDI.

MAMMOTH CLUSTER RASPBERRY. A. M. Purdy, Palmyra, N. Y., writes: "I notice two or three slight errors in my article, headed 'Mammoth Cluster Raspberry,' page 363 of *Gardener's Monthly*."

1. Last line of 1st verse, should read had growing, instead of 'had grown.'

2. 3rd verse 4th line, should be 4) years, instead of '70 years.'

3. Last part of 3rd verse, should read *variety*, instead of 'quality.'

4. 1st line of 4th verse should read in *Indiana*, instead of 'Illinois.'

5. 6th verse 3rd line, instead of word 'their,' should be these.

These mistakes may seem slight, but I see a chance to take advantage of them by *certain ones* and hence call your attention to them."

PRODUCTIVE GRAPES.—L. B., Philadelphia, sends us the following interesting note: "I have felt that I needed a certificate of credibility, almost, when at several times referring to the numbered bunches of grapes grown on vines in my yard; and I therefore feel greatly relieved on seeing the enclosed article in the daily *Tribune* of Oct. 8th. I think this will show that the grape is capable of much greater productiveness than is usually accredited to it:

Mr. Rea presented some fine close clusters of grapes grown in this city from a seedling, and asked the club to name the variety to which they belonged. The general opinion was that they were Isabellas, but some thought otherwise. Mr. Lawton pronounced them remarkably fine Isabellas, produced by careful cultivation under favorable circumstances, and said that he had never seen the hardier varieties of grapes—the Isabella, Muscadine, Black Eagle, Black Hamburg and others—succeed so well anywhere with slight cultivation, as in this city. Judicious pruning is all that is needed. He knew a shoemaker, down on Water St., some 3) years ago, who planted a Muscadine cutting in a little strip of ground by his shop, and bricked up the yard, leaving only the orifice for the stalk of the vine; he put a little water on it and pruned it occasionally, and it became so luxuriant as to cover the whole place, and was so loaded with fruit that hundreds of people went to see it daily in the bearing season. Mr. Lawton also said that he had himself had an Isabella grape vine in Walker St., which in its fourth year had yielded more than 500 bunches of the finest quality. In view of these facts he was not surprised at the superior flavor and appearance of these grapes; he thought, moreover, that if the Isabella grape always received the advantages which these had, the ancient high reputation of that species would be revived in this vicinity. The Chair-

man announced to Mr. Rea the verdict of the Club that they were Isabella Grapes, and Mr. R. said that he had bought the seedling for an Isabella, but so many had declared on tasting the fruit, that it was superior to that species, that his faith had been shaken. Mrs. Barlow said that she had raised even finer bunches than those upon a brick wall with south exposure. The chairman spoke of a vineyard in Columbia County, of 500 vines of the Isabella variety, which produced several hundred bunches to a vine, of a quality which he thought would compare favorably with the finest varieties which have been presented to the society this season. He ascribes this success to the fact that a liberal allowance of solid bone was placed around the roots of each vine, as experiment had proved to his satisfaction that bone was the natural food of the grape.

And I also hope that it will encourage the more general planting of native grapes. I have for years felt great interest in ascertaining what the capacities of the vine are, for practical purposes, and for people who cannot afford to build greenhouses; and in this purpose I have often endeavored to enlist our society, feeling regret at my want of success."

THE WHITE CEDAR.—R. L., Jacksonville, N. Y.—This is not a native of your State, but is the *Cupressus thyoides* of New Jersey and the South. The so-called White Cedar of the North is the common Arborvitæ.

PROPAGATING PAULOWNIAS.—B. R., Frederickburg, Md.—This is not at all a difficult tree to raise. 1st, By seeds, sown in light soil in the spring; 2d, by cuttings, with two joints cut off and planted in the fall; 3rd, by root cuttings, made into 3-inch lengths, and set out in spring.

Root cuttings are most popular. They make the strongest plants. We agree with you, that the tree is "beautiful," when that term is confined to a tree in blossom. It is a very rapid grower, however, and where "fast" trees are wanted, and little else, it is a first-class thing.

SEEDLING POTATOES.—E. & B., Pittsburg.—We send you, per Express, a sample of our new potato, which we wish you to cook, and give us your opinion of its quality. We will merely state, at this time, that it is wonderfully productive."

[We are "shy" of new Potatoes. This one has a blue skin, and cooks yellowish. After trying most of the kinds, new and old, we found this year some "White Buckeyes," sent us a couple of years ago by a subscriber, from Marysville, Kentucky, "for a name," the best for table use. We tried these seedlings with those, and

all think them better than the Buckeyes. So far as flavor and appearance goes, we regard this as a very promising variety.]

NORTHERN RAMIE.—J. B., Columbia, Pa., writes: "Enclosed please find a very small quantity of what is called "Northern Ramie!" sent me by a Missouri correspondent. He states that you, when there some months since, pointed out this plant as probably a valuable fibrous plant. Do you know its botanical name? and will you inform me if it is known to you? A history or description of the plant, and its probable value, through the *Monthly*, might be interesting to many others besides myself. Let us know more about it."

[This plant is the *Urtica purpurascens*. The fibre is at least equal to that of the Boehmeria, now so popular as Ramie; while it has the advantage of being a northern plant, and hardy,—which the tropical one is not.]

JERUSALEM CHERRY.—M. C. McL., Charleston, Ill.—"I have this day sent you, per mail, leaf, stem, bloom, thorn, green and ripe fruit, of a new kind of plant, the seeds of which were sent out from Europe last year, under the name of Jerusalem Cherry. Plants from seed, this season, have made a growth of from three to six feet, and at this time present the novelty of bloom and fruit, in all the stages of growth up to maturity, on the same bush. You will greatly oblige me by giving name, &c."

[This is the *Solanum Hystrix*. The common "Jerusalem Cherry," of gardens, is a small red-berried variety, named *Solanum semibaccatum*.]

CONSTRUCTION OF PLANT-HOUSES.—A. A. M., Pittsburg, Pa., writes: "In one of your numbers in fall of '68, there was an article on Economy in Construction of Commercial houses. Was the subject continued in '69? If so, in how many numbers, and in what months?"

[We can only say that the manuscript of the "continuation" never came to our hand, and all our efforts to procure it failed.]

TOMATO DURATION.—W. G. P., Sacramento, Cal., asks: "Is the Tomato a perennial in its native country? It seems to me at least a biennial."

[It is rather a biennial,—one of those things which linger on, not doing as well the second

year as the first, but existing long enough to go beyond the annual class.]

SPECIFIC HEAT IN PLANTS.—*L. F., Evansville, Indiana*, says: "If agreeable, I will send a short article for the *Monthly* on 'Specific heat of plants,' which, if you find of sufficient interest, you may use.

[We shall be very glad to have the article.]

PLANTING LARGE TREES.—*A Correspondent* says: "My experience is decidedly against planting large trees. I see reports from Paris of many of the large trees planted on the new Boulevards, are now in a sickly or dying state."

[Large trees planted on the old system of 'large balls,' are not successful; but on the plans we have frequently given in the *Gardener's Monthly*, trees from about six inches in diameter and 15 to 20 feet high, do as well as younger ones.]

SEEDLING BOUVARDIAS.—*S. B. V., Greenville, N. Y.*—"I herewith send you a White Bouvardia, which I believe to be a new production. Please inform me, through the *Monthly*, whether I am correct or not; and please favor me with your opinion about it."

[There is a white Bouvardia; but this appears to be, (for it is very dry,) a white variety of *B. leiantha*, and if so, will be valuable.]

NAME OF PLANT.—*Subscriber, Allegheny, Pa.*—"Your weed is *Enothera biennis*,—"Evening Primrose."

FEMALE AILANTHUS.—*W. F. B., Hammon-ton, N. J.*, asks: "Is it a fact that the female Ailanthus does not throw up suckers? and if so, can it be propagated from roots?"

[Sex makes no difference in power to sucker. It can be raised from roots, or top cuttings.]

WINTER GRAFTING.—*L. L., Evansville, Ind.* says: "What are the most necessary rules for winter grafting? Have the grafted trees to be put right after the operation into the ground in a warm house, to start the circulation of the sap so as to unite the stock and graft by the formation of callous? Could you no give a short answer in your *Gardener's Monthly*? I have not succeeded with this operation in the best manner last winter."

[The old notion was that the sap was at rest

in the winter, and that the whole functions of the plant were at rest in the winter season. We have done our best to explode this notion in the *Gardener's Monthly*. Leaf growth of course is not in operation; but cell life, in all except generation, is as active in winter as at any time. Hence grafting can be done thorough the whole of this season, union of scion and stock takes place as freely then as at any other time; no heat to start the sap is necessary. A scion put on now and tied tight, and waxed over, will be thoroughly united by spring, though the temperature should not go above 40° in the soil, sand, sawdust or mass in which it may be imbedded. It is not necessary to put them in the open ground after grafting. The usual plan is to keep the stocks in any moist material, cool as possible, and set out in spring. Some few things will unite together when the scion is set down on the root: others when placed in the collar of the stock, but most things do best when set on old wood, just as in regular tree grafting. The earlier in the winter season the grafts are put on the stronger they grow, although the operation is continued until the setting time comes.

WAX PLANTS AND PITTOSPORUM.—*W. W., West Roxbury, Mass.*—"Please inform me how to treat the wax plant so as to induce it to bloom. It is eight years old. Also a Pittosporum."

[The Wax Plant *Hoya carnosa* and the Pittosporum are often shy of flowering when grown in the shade. We have never known the sun treatment to fail. Give them them good rich soil, in not over large pots, and grow all next summer in the full sun, and we believe they will flower very freely the spring following.]

DEMAND FOR CUT FLOWERS.—*A Rochester Correspondent* says: "The demand for flowers, and especially cut flowers, is very much on the increase."

SMALL BOILER FOR PROPAGATING HOUSE.—*L. T.*, enquires: "Which is the best for this purpose?" and refers to some account in a back volume, of Munroe's Cannon Boiler. We gave an account of that under our "Foreign Intelligence," which refers to what is being done abroad; we do not know of any one in use, in America. Myer's small boilers are the best of that class that we know.

OBITUARY.

JOSHUA PIERCE, WASHINGTON, D. C.

It is remarkable, that one so widely known, amongst Horticulturists, and so highly esteemed for his knowledge and goodness of heart, should have so quietly passed away from us, without its becoming generally known. We only learned of it recently, and feeling it due to one who has worked so long with us, and who was one of the first and firmest friends of our magazine, that some mention of his worth should go on record, we asked a friend, who knew him well, to prepare a memoir for us, which we now give:

His father came from Chester County, Pennsylvania, about the time when the seat of government was established at Washington, and settled on Rock Creek about 3 miles from the city; attracted there by the fine water power of that stream; and carried on the milling business in connection with his farm. He was born in March, 1795. It was, as I have understood, his original intention to study law, but his academical studies were interrupted by the war of 1812, when he was kept home at to attend the mill, the miller having been drafted into the army. His studies were never resumed, and in the year 1820, he married, and settled in 1823 at Linnean Hill upon a part of a homestead given him by his father, where he lived in sight of the house in which he was born, until his death at the age 74, April 11, 1869.

His taste for horticulture was early developed. He conducted a nursery for some years at his father's place, and planted the seeds of numerous trees which he afterwards removed to embellish his home, and which now form a grand and towering monument to his memory. He was throughout his life devoted to the cause of horticulture, and remarkable for his attachment to the beautiful place on which he lived, a trait so uncommon among a people so restless and roving as ours. His attachment to his home may be the less remarkable, as Linnean Hill is renowned for its picturesque and romantic beauty. In addition to horticulture, he also devoted much attention to floriculture. For many years, his greenhouse was the only considerable one in the district. It was a great attraction to the throng of brilliant spirits who then resorted to the metropolis of the country. All who were distinguished in the political and social circles of the Capital used to frequent the place to wander among its groves and carry home with them what were then rare and costly flowers. Upon the establishment of other greenhouses in the City of Washington by Douglass, Bulst and others, the greenhouse at Linnean Hill being too far from town, that business was discontinued and extensive attention given to the nurseries, which he conducted until his death. He was engaged in the *Morus multicaulis* movement with the usual result. He was the first to appreciate the value of the Tennessee Rose, and by hybridization produced the first varieties of the wide spread and valuable family of Prairie Roses. I have heard him say that Hovey of Boston, claimed the merit of originating the Prairie Rose, but that he was prior to Hovey. He also introduced the Catawissa Monthly Raspberry, which has proved—particularly in the Southern States a very important addition to the small fruits. From the time of the organization of the American Pomological Society, he took an active interest in its proceed-

ings, and attended a number of its biennial meetings, and contributed his experience of the climate of this region. He was very much interested in the subject of Pear Blight,—that *questio vexata* with pomologists—and I believe sent you a paper containing his views for the *Gardener's Monthly*. He maintained a correspondence with many of the leaders and veterans of pomology, to whom he was well known. Dr. Brinckle of your city, was one of his warmest friends, and among his correspondence are many of the letters of Mr. Wm. R. Prince, who was eloquent over Strawberries and Chinese Yams. Mr. Prince was very hard upon the English, who he used to say had too little electricity in their humid climate to develop their brains. With the lamented Downing, he was on very cordial terms, and always regretted his early loss to the cause of the advancement of horticultural taste in America. There is in fact but little to be told of his life, as it was marked by no salient features. Many men have made more noise in the world, but have accomplished less real good than he did. He used to say of Fame, that one murder makes a felon, but the man of ten thousand murders is a hero. The best that can be said over the tomb of any man, is the simple phrase: He has done his duty and is now at rest.

"The boast of heraldry the pomp of power,
And all that beauty, all that wealth e'er gave,
Await alike the inevitable hour,
The path of glory leads but to the grave."

LARGE LEMON VERBENAS.—*V. G. P., Sacramento, Cal.*, writes: "I sent you by this mail, but in another envelope, a twig of *Aloysia Citriodora*—Lemon Verbena. I cut it this day, from a bush in the open ground, that had been there without protection for 8 years. It is now about 8½ feet high, showing some four feet above the fence. A year ago, it was over 12 feet, but the building against the side and higher than the top of which it grew, had to be removed, and the bush was dug up; but the workmen were so careless, that they mutilated the roots very badly—in fact pulled it out by main force with very little or no digging. I cut it back about two-thirds, and planted it against a fence, giving it an eastern exposure, whilst before, it was protected on the east and exposed to the west. It has never fully received its pristine vigor, though it is healthy and doing well, some of the shoots it made this season being four feet long. I send it, to show you cold-suffering people—I formerly lived in Germantown—that it is still partially in bloom notwithstanding the time of year.

I also send a smaller specimen taken from the same plant when it was in full bloom in summer 4 years ago."

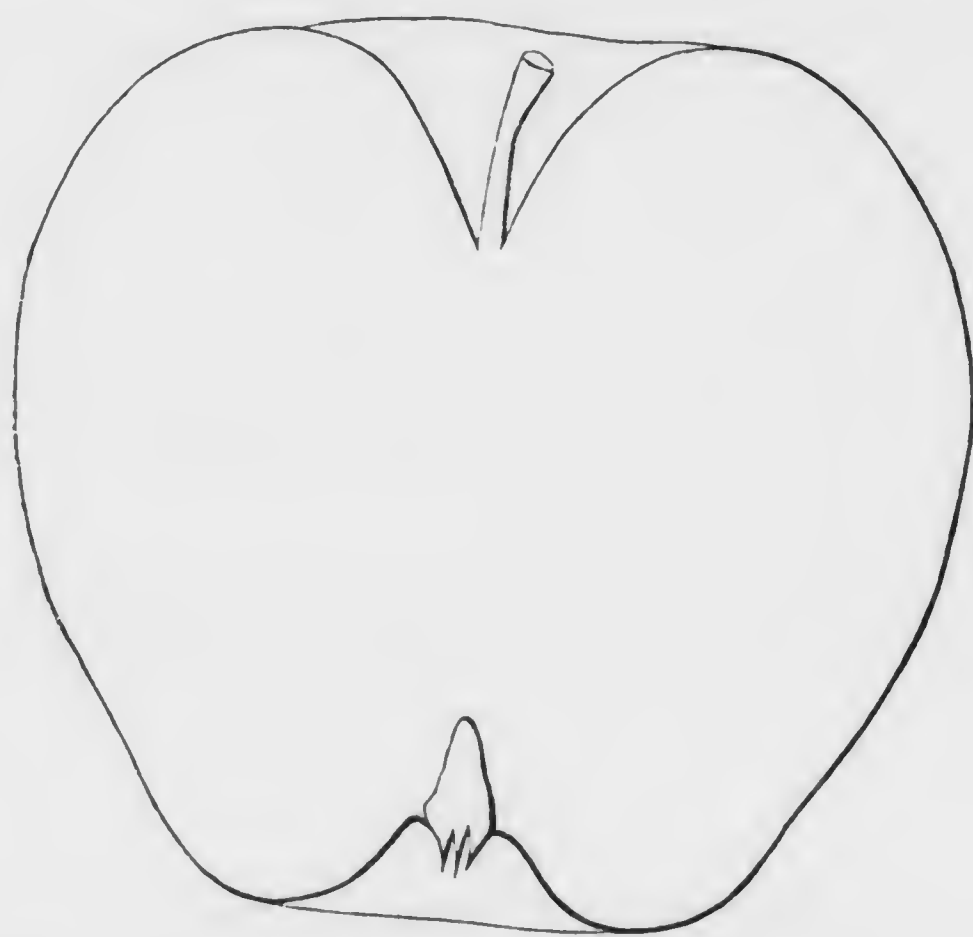
[This was a very vigorous specimen, and we have placed it in our Herbarium, putting to shame the small "bits" which have held prominence there so long.]

NEW AND RARE FRUITS.

GERMANTOWN APPLE.—Mr. Downing has prepared for us the following note:

This is a pretty apple; but not, so far as the specimen before us permits us to judge, one of the highest flavor. It possesses some interest however in the circumstance of its origin, as throwing some light on cross fertilization. The facts as communicated by a friend from Germantown, are that two trees, one "Wrigley," the other a local variety known as "Sheepnose Pippin," grew with their branches interlacing

together by themselves. It is not absolutely certain which produced the fruit of this seedling, which was found germinating in the manure of a horse to which the fruit had been fed. This circumstance from its novelty caused the plant to be saved, and is only mentioned, as fixing definitely the origin of the parent seedling. The tree partakes of the characteristics of the two. The fruit being of the exact form of the "Sheepnose Pippin," but rather larger, and retaining the yellow ground color of that variety; while



it has the bright red of the "Wrigley" shaded over it.

The tree is but 12 years old, but so far, shows the habit of the Wrigley. The foliage and wood also favor that variety. There is little room to doubt that it is a natural hybrid between two varieties. The following is the description from the single specimen sent to me:

"Germantown—Fruit medium or above, roundish conical, sometimes oblong-conical, regular; skin pale yellow, shaded and mottled with light bright red, and a few broken splashes of a darker red, moderately sprinkled with areolea and brown dots; stalk rather short and small, inserted in a deep, rather narrow cavity, slightly russeted;

calyx closed; segments short erect; basin abrupt, deep, slightly corrugated; flesh, whitish, tender, moderately juicy, with a pleasant sub-acid flavor; very good; core small."

THE EUMELAN GRAPE.—W. H. W., Reading, Mass., says:

This new variety is just now attracting a good deal of attention, and any information in regard to it from one who has had some little experience with it, will doubtless be welcome to many of the readers of the *Gardener's Monthly*.

A vine was sent me for trial by Dr. Grant in the spring of 1868. It was planted in the open garden with a southern exposure, in a rather

poor gravelly soil. It grew strongly, and though twice pinched, had by the end of the season formed a cane about seven feet in height and as large as a large lead pencil; it was *entirely* healthy. The wood was very hard, and for such a vigorous grower very short-jointed, the internodes averaging about four inches; the leaves were large, very dark colored, thick and tough:

This season it has made about twenty-five feet of cane, and has borne nine bunches of fruit. On account of the vigor of the vine, they were all allowed to mature. Both fruit and foliage were entirely exempt from any appearance of disease. The clusters were some of them small, and the berries were thinly set; but this was only on the upper part of the trellis where there was no protection from the storms which raged while the vine was in flower. On the lower portion of the trellis were two or three bunches of very good size and very compact; one of them was nearly as large as the representation of the grape given by Dr. Grant's pamphlet. The fruit ripened nearly a week before Miles' (growing at its side) or Hartford growing near, but with a western exposure. In quality, the fruit is *very fine*. It is more delicate and refined than any other hardy black grape that has yet been offered to the public. It has no perceptible pulp. If it shall prove elsewhere as strong and healthy a grower as it has thus far proved with me, it must take rank at the very head of black grapes for out-door culture.

PRINCELY APPLE—I send you specimens of apples from my orchard. I fear that your attention was never called to the same kind before. I was never able to ascertain their name, till I took a specimen to the meeting of the Pomological Society, and there, S. Noble not only told me the name, but showed me specimens of the same kind from his orchard. Since, at the Westchester Agricultural Fair, I showed them to John Rutter, who declares them to be what Noble called them, and told me he had been acquainted with them for many years. They are *Princely Apples*.

I have six trees of them, which I have never known fail to bear more or less every year; and they remain in condition to use a long time, from August till December; and they rot less than any kind of apple I am acquainted with. I should have sent them earlier, as their season is nearly over and many of them are much withered now, but it is not yet too late for you to judge of their quality. Some persons when they hear the name of Princely mentioned, think that *Priestly* is meant. There is no resemblance. I know the Priestly; a long apple and very sour. The Princelys are rather larger and finer this year than usual.

WM. G. B.,
Glen Mills, Pa.

[Princely and no doubt; and one of our best sweet winter apples; and as pretty to look at as it is good to eat.—ED.]

DOMESTIC INTELLIGENCE.

THE BALDWIN APPLE IN NEW HAMPSHIRE.

—According to tradition, the first scions of the Baldwin apple ever brought into New Hampshire, were grafted into an apple tree on the farm of Mr. Eleazer Jackson, in the town of Cornish. The scions were cut from a tree in Billerica, Mass., in or about the year 1800, at which time they were successfully grafted into the tree as above stated, and which is still in a remarkably vigorous state. Last year the limbs of this tree were fairly bent to the ground with their great burden of fruit. When the tree first began to bear its new fruit, the fame of the hardy, remarkable apple spread throughout that section of the State, and immediately the farmers from far and near flocked to the tree for scions for

their young orchards, and the number of tiny twigs which have thus been cut from the parent scion are numbered the thousands.

An interesting fact in connection with this tree is that the farm on which it stands is owned by the oldest person in the town of Cornish, Judge Eleazer Jackson, the son of the original owner of the tree.

Tradition further has it, that the Baldwin Apple was brought to the notice of fruit growers by a man named Baldwin, from whom it takes its name, and who by chance found the fruit while hunting in Woburn, Mass. He carried some of the Apples home, and by keeping them some time, noticed their undecaying nature and their juicy and delicious qualities. In conse-

quence of this he obtained some scions from the tree which bore the apples, and engrafted them into his own orchard trees. This occurred about ten years previous to the introduction of the apple into New Hampshire.—*Concord* (N. H.) *People*.

THE CAMPBELL APPLE—An accidental seedling that sprung up about fifteen years ago close to the wall of a brick house occupied by George W. Campbell, Esq., of Delaware, Ohio. The tree is a vigorous, strong grower; habit open spreading; limbs not crowded; shoots stout, rather blunt; foliage abundant, leaves rather large. It has borne a good crop regularly every year since it commenced bearing. Fruit quite uniform; size from medium to large, and hangs very finely to the tree. It is evidently a late keeper, but heretofore they have been "too good to keep" later than January.—*Iowa Homestead*

USES OF THE AILANTHUS TREE—The Journal of Applied Chemistry states that the active properties of the bark of this tree have within the past few years been examined by several eminent French chemists, and especially by Prof. Hietet of Toulon, who has pronounced it particularly valuable as a vermifuge. Its odor produces strongly narcotic effects, while its taste is bitter and nauseous, somewhat similar in its results to the internal administration of tobacco. When the bark is digested with alcohol, and the latter is evaporated, a thick resinous oil remains, which acts as a cathartic, and like the powdered bark has proved successful in the expulsion of the tape worm.

HONEY LOCUST FOR POSTS—A correspondent of the *Country Gentleman* of August 5th, inquires of those who have had experience in using honey locust for posts as to its durability. It is about as durable as sassafras, but not equal to black walnut. One black locust post is worth three or four of honey locust; but for rails it is excellent, retaining its weight a long time. The honey locust is much less durable in some sections than others; in Missouri it will not last more than half as long as in Kentucky. Young sound mulberry, when seasoned, is as durable as cedar, and makes a better post than the majority of red cedar posts.—J. S., *Florissant Valley, Mo.* in *Country Gentleman*.

IMPROVING OATS—Samuel Dixon, of Chester county, cut a field of oats on Wednesday, the 14th inst. This is at least a week or ten days in advance of the common oats crop. The cause of its earliness in ripening is owing to its being mixed with barley, the product of seed so grown for several years. Barley ripens earlier than oats when grown separate, but it is a singular fact that when mixed they both ripen at the same time, the oats coming to maturity at the same time as its earlier neighbor. The cause of this we are unable to explain. Mr. Dixon obtained the seed of a farmer near West Chester, who at the time of mixing the seeds, used equal quantities of each, but now, after several years sowing, the barley constitutes only about one-twentieth of the grain. Mr. D. thinks the mixed seed has not only a tendency to ripen earlier, but the oats are improved in weight and a much better crop. This is an experiment worth knowing to farmers. Franklin Darlington, of East Nottingham, who has the same kind of oats, cut about the same time.—*Oxford Press*.

HORTICULTURAL SCHOOL FOR WOMEN—The working plan of the school comprises a farm, to be procured in the vicinity of Boston, containing about 20 acres; 5 acres to be used for the cultivation of small fruits, flowers, salads, and such vegetables as are suitable for cultivation by female labor, the rest to be devoted to mowing and pasturage; a good dwelling-house capable of accommodating about 30 inmates; a barn large enough for the farm stock; an experimental plant-house, for growing flowers and early vegetables, and the forwarding of plants for field crops. The control of the institution is to be vested in a president, secretary, treasurer, and 24 managers—one-half of whom shall be women—who will be aided by a competent instructor, an experienced farmer, and the other necessary assistants. The pupils will be instructed in plain sewing, the use of sewing machines, and all kinds of house-work, as well as in horticulture; the lecturers and teachers in kindred branches of labor and service will be employed from time to time.

It is intended to receive pupils to the number of 25, who are to be from the ages of 16 upwards, of good character, fair education, and able to work as may be required. The course of instruction will extend through two years. The estimated cost of procuring the farm and out-buildings and maintaining the school for 3 years to be \$30,000."

REMOVING TREES IN FULL LEAF—During a recent call at the nursery of Mr. J. Nelson, of Hallowell, he showed us one or two hundred cherry trees, set out for the purpose of starting a cherry orchard for his own use, all of which were transplanted the middle of June, when in full leaf, and every one of which was growing as well, and looking as vigorous as if set out last fall. Mr. Nelson said he would hardly have risked the job, had he been obliged to purchase the trees, but now that it is done, is quite strong in the opinion that any kind of tree can be transplanted at almost any time in the year, with a good prospect of living, provided care is taken in performing the operation. Mr. Nelson also grafts at any time from March to August, and has lost but very few scions out of the many hundreds he has set out.—*Eastern Paper*

GARDENING IN MISSISSIPPI—A Correspondent of the *Prairie Farmer* says: "Tishamingo is one among the foremost counties in North Mississippi. The people are cultivating their grounds in accordance with scientific rules, to a great extent. Farmers clubs are meeting regularly in almost every district, and lecturers are exerting themselves for the general good.

Market gardening is beginning to claim the attention of many here, and it should. This locality should produce one of the successions in your Northern markets. You now have unbroken lines of railroad, so to speak, running directly to your Northern cities, and marketing may be sent along them at low figures. In this region products will be ready for market several weeks earlier than at Chicago, and they can be grown here as cheaply as at any point in the world; hence you must see its importance. Nobody has yet undertaken the thing, that I know of, but there is being considerable talk on the subject. And you should agitate for none are more deeply interested than yourselves. People down here, as a general thing, don't know much about market gardening; but you have the market gardeners up North, and it is to your interest to send them down. They will find a friendly and intelligent set of citizens down here, ready and willing to give them any encouragement; provided, they behave themselves.

ORCHARD OF JONATHAN HUGGINS—The *Prairie Farmer* says: "Mr. Huggins has well nigh one hundred acres of apple orchard; much of his fruit was being manufactured into vinegar, the best of it into cider and the small portion of

that which was perfectly sound was being stored away for winter consumption. We spent the day and night here, and thoroughly examined Mr. Huggins' grounds. There was much on this well managed farm to interest us. Among the things, miles of Osage hedge, making as perfect a fence as could be desired. The first hedge set out in this county was planted by Mr. Huggins, seventeen years ago; it has taken the premium whenever entered at the county fairs, and would take the premium, if entered at our state fair. Those who have any doubts about the utility and practicability of Osage hedges should come down into old Macoupin, and look at their live fences. Mr. Huggins, this year, raised three or four hundred bushels of gooseberries and currants, the Houghton and Red Dutch; the market price was low, and while the crop was an excellent one, the remuneration was scarcely such as to make it profitable to grow them. The Keswick Codling is largely planted in this orchard, as one of the most profitable kinds for market, the Sops of Wine and the Red Astrachan, are the next favorites. The Baldwin and the Newtown pippin were so sadly disfigured by the louse and the unknown curculio, as to be worthless."

PEAR CULTURE IN CANADA—The *Canada Farmer* reports a very interesting paper on Pear culture, by Rev. B. Burnett, of Hamilton, Canada. The White Doyenne, Flemish Beauty, Seckel, Glout Moreau, Napoleon, Onondaga, Louise Bonne de Jersey, and Belle Angevine are the healthiest. The Winter Nelis, Easter Beurre, Rostiezer, Beurre d'Anjou, Louise Bonne de Jersey, Bergamotte, Cadette, and Brown Beurre, are the hardiest. Louise Bonne de Jersey is the most productive, next Vicar and White Doyenne. Doyenne d'Ete prolific in alternate years. The Beurre d'Anjou has a habit peculiarly its own. "It regulates the crop to be borne, and has its fruit more evenly distributed over the tree than any other with which I am acquainted. I cannot speak too highly of the cultivation of this variety. Notwithstanding the size of the fruit, it rarely sheds its burden, and for its eating qualities it has scarcely an equal." The Brown Beurre is next. Winter Nelis is excellent for winter. Best fruit is the Seckel, Belle Lucrative, Beurre d'Anjou, Brown Beurre, Winter Nelis and Beurre Diel. The Duchesse he ranks along with these, but does not rate the fruit so highly as some growers do. The Easter Beurre is praised, but it is gritty. The Jalousie de Fontenay is the prettiest in shape. For color and form, in a market fruit, Louise Bonne de Jersey has the preference. For size, Duchesse d'Angouleme and Onondaga. He has grown Belle Angevine to 24 ounces.

FOREIGN INTELLIGENCE.

GRAFTING POTATOES TO GET NEW VARIETIES.—The following is reported of a recent meeting of the Royal Horticultural Society:—

Mr. Berkeley having adverted to Mr. Fenn's exhibition of Potatoes, consisting of two series, in which Hogg's Coldstream and Shutford Seedling, and Early Emperor and Fenn's Onwards, were respectively the male and female parents, mentioned that some of the progeny had actually degenerated so much as to resemble the wild Potato. He then read the following paper by Mr. Fenn of the results of grafting Potatoes:—

I grafted this year Red Ashleaf on Dickson's Premier, Paterson's Scotch Blue on Royal Albert, and *vice versa*. I have been unfortunate this season in regard to the "taking" of the grafts. I planted and kept the grafted sets in 6-inch pots, contrary to my later practice of planting them in the open ground when the shoots in the pots have pushed 5 or 6 inches out of the soil. This may have tended to cause non-success as regards the cicatrization of the skins; nevertheless, sufficient results have been arrived at to afford conclusive evidence as to the possibility of grafting one Potato with the eye of another.

On July 14th, I examined two sets, an eye of Royal Albert (a handsome, round, white Potato), grafted on Paterson's Scotch Blue. The eye had held perfectly fast to the tuber, thereby giving hope of some influence being exerted between the stock and graft. I made the graft fit as perfectly as possible into the wedge-like, sliced out cavity in the tuber, but at the above date the graft had swelled out of its first position, though not sufficiently to disunite itself from the cicatrix of its own skin and that of the stock on one side. I gave several good tugs at the graft, but could not displace it, and I sent it to Dr. Masters to verify this result. Dr. Masters wrote me in answer, "In one case the cohesion was evident, but I do not see that the new tuber or the haulm is at all affected by the grafting process. We must have more conclusive evidence than that. I see the union is not merely along the rinds, but in the cellular mass of the Potato as well. I have forwarded the tubers to Chiswick. The whole subject is very interesting."

The other sort sent to Dr. Masters was the eye of a Paterson's Scotch Blue on Royal Albert,

no cicatrix, or union of the skins had formed, but some of the young tubers were half-colored, others less colored, and one was perfectly white, none of them showing blue all over like the sort. I asked Dr. Masters to forward them to Mr. Barron, and request him to plant them and note whether the coloring was permanent.

Now for "more conclusive evidence." I wrote on the 14th of July that I durst not then meddle with the roots of my last year's grafted Potatoes. Their appearance I noted thus:—Fenn's Onwards on Almond's Yorkshire Hero: an Onwards haulm, but earlier, and very diminutive in comparison. Hero on Onwards: I can perceive no difference in the haulm as compared with those not grafted, except, perhaps, that the foliage of the grafted sets is of a more glazed green. Yorkshire Hero on Fluke: haulm looking like that of the true Yorkshire Hero, with not a symptom of the dark green tinge of the Fluke foliage. Milky White on Yorkshire Hero: haulm like that of a diminutive Milky White, quite ripening off, whilst its namesake by its side was in full vigor of leaf. Milky White grafted on Fluke (this I did by mistake; I intended to have grafted the Milky White on itself, to try what would be the effect, if any): haulm showing quite a different character from that of Milky White, being not so branching and of a darker, more upright, and more robust habit. All the above examples in 1868 united at their rinds more or less completely soon after they were planted out—a fact which I proved by inspection.

I planted the above-named Potatoes on April 15th, when the graft of Onwards on Hero showed sprouts decidedly greener than those of the true Onwards; and when I dug them up, on August 9th, their haulm was not nearly so ripe as that of the latter, and their produce generally, for form, proved rounder than Onwards. The Milky White grafted on Fluke is the only other decided "conclusive evidence," and that is conclusive enough in the wrong direction; the character as well as the Potato, being quite spoilt. In short, I may have gained (but I must wait another year to prove it) an improvement by grafting the Onwards on Yorkshire Hero, and that I fear will prove at the most but a mere penny-worth of Potato to a sack of trouble, though I shall be

well content if, by the experiment, I have added my mite to the science of horticulture.

ART OF VALUING AGRICULTURAL LAND.—"Although it is exceedingly dangerous to attempt to judge of the quality of a soil from the crops grown upon it in one particular year only, still many most useful indications may be obtained from its more permanent products, especially from the trees and grasses. Most of our ordinary forest trees have special proclivities for the various soils on which they flourish, and a careful observation of their growth, and of the hedgerows, affords information which will seldom mislead. A really thriving Elm tree or Hazel cannot be found where there is not a good mixed soil, whilst an abundance of Oak and Blackthorn are indications of heavy land; and the growth of the trees will generally correspond with the depth and quality of the soil. The Alder and Willow are only found in wet places, chiefly by the water-side, and the Poplar usually in wet places. On the other hand, Coniferous trees prefer the lighter soils, and the Scotch Fir grows on thin lands which will produce nothing else except Heather; and the Beech, though it will grow elsewhere on good land, is usually indicative of a calcareous soil. The Sycamore is partial to light or sandy soils, whilst the Walnut, and I believe I may say the Maple also, usually grow on good mixed loams. The Ash is scarcely a sign of any particular kind of land; if it is of rapid growth, it indicates good land; in poor stiff clay it is constantly met with, but is of slower growth and often stunted. The Whitethorn, if it grows rapidly, is a sure indication of good land; and one never sees a strongly-grown Quick fence on inferior soils."—*English Paper*.

PERENNIAL RYE GRASS.—An important seed case, of which the following is an abstract, was recently tried in the Sheriff's Court at Haddington:—Mr. John Ried, jun., farmer, Hilton of Aldih, Kinross-shire, sued Messrs Routhead and Park, seed merchants, Haddington, for 100*l*. damages, on the ground that a quantity of Grass seed purchased by him in 1865 as perennial; failed to produce a second year's crop, and must have been annual seed. A great deal of evidence was led on both sides, the witnesses being seedsmen, practical farmers, Grass seed growers, and practical botanists. For the pursuer, it was contended that there were two distinct varieties

of the Rye-grass plant, an annual and perennial, as deposed to by a great number of witnesses; that the land on which he sowed the seed was in good condition and well prepared; and that a portion of the field sown with different seed produced a second year's crop. On the other hand, the defenders pleaded that the land was in poor condition; that according to scientific evidence there was no such thing as an annual Rye grass, that being merely a trade term for the lighter kinds of seed; and that the seed supplied was from a bin from which they had supplied their perennial seed that year to numerous customers, without failure in any case except that of the pursuer. The Sheriff-Substitute has decided in favor of the defender, assessing the pursuer in expenses.—*Gaz. Chronicle*.

TRAINED PEAR TREES.—A correspondent of the *London Journal of Horticulture* says: We have no objection to old-fashioned orchards, and especially when the under crop is grass, manured at times. These are excellent for insuring always an abundant supply to an establishment, and the gardener is little troubled, if a few trees should be barren each year, which he must be, if he has only a few trees altogether in a kitchen garden to depend upon. But where room is to be made the most of, and the greatest pleasure is to be derived from the culture of fruit trees, commend us to low bushes or pyramids—say from 6 to 8 feet in height. The wind will have but little power on these, comparatively speaking, and the fruit is easily examined, and easily gathered. If we had the chance, we should be inclined in small gardens to adopt the cordon system of training—that is, having only one or two shoots from a tree, and spurring them from top to bottom. We have little faith in mere fanciful modes of training but by the one-shoot system a great variety can be grown in little space, and each kind on its own bottom, as it were. We believe that great results may be achieved by this plan in small gardens, where the lines of fruiting stems can be kept near the ground, and a protection given in severe weather.

LILIUM AURATUM.—The special feature of the meeting of the Royal Horticultural Society, on August 7th, was undoubtedly a large specimen of *Lilium auratum*, from the gardens of the Dowager Lady Ashburton, of Melchet Court which was a plant of great beauty, and so fine a

specimen of which he believed had never before been shown. The Lindley Medal, which is only given to extraordinary specimens of good cultivation, had been deservedly awarded to it by the Council, on the recommendation of the Floral Committee. It is well known that there are several varieties of *L. auratum*, some being more deeply spotted than others; this was one of the paler colored kinds. What a splendid subject for hybridization this variety would make, remarked Mr. Saunders, if it were taken as a basis to work from, and color and other characteristics were introduced.

CELERY.—A Correspondent of the *London Journal of Horticulture*, says: A single fact is often worth a number of inferences. That fact clearly shows us all that has been advanced on the bit-by-bit earthing-up of early Celery is based on a principle that scarcely permits of error. On examining some Celery washed and ready for use, we noticed it was harder and firmer to the touch than it ought to be, so as to be short and crisp, as well as sweet, the three essentials for good table Celery, as an accompaniment to cheese, &c. That Celery had been thoroughly soaked more than once before earthing-up, and yet on taking up some roots we found these dry enough. The tops of the leaves exposed had evaporated all the barrels of moisture we had given in the parching weather. That Celery had been earthed up at once. If we had put the earth to at three or four times, and without fresh watering, we should have expected almost every plant to have thrown up its flowerstalk. If the weather had continued dry and hot, we should have expected the same result. No rains that fell would ever reach the roots; they would only act in lessening evaporation from the foliage. Openings and holes were therefore made between the rows, and enough of water poured down to saturate the soil at the roots, and now the Celery is crisp as it ought to be. The man who gave the last waterings before earthing-up could scarcely believe that it was possible for the great mass of roots to become so dust-dry. There are few plants that evaporate more moisture than Celery in a hot sunny day. By this or other means allow the roots to become dust-dry, and in self-defence the plant will throw up its flowerstalk to perpetuate the race. The same principle holds true in all vegetable growth. A severe check to luxuriance is the

most effectual mode of securing early flowering and seeding.

AMERICAN POTATOES.—Describing Carter's Seed Farm—A Correspondent of the *Gardener's Chronicle*, says: The much-vaunted Early Rose was here, very small in produce, and not at all coming up to expectation. Another American variety, the Early Goodrich, was growing alongside the former; it is a round, smooth, and cleaned skinned variety, and that is about all that could be said in its favor. There was also a very prolific red Potato, having foliage strongly resembling Raspberry leaves.

MUSHROOM CULTURE IN FRANCE.—In a work entitled 'The Parks, Promenades and Gardens of Paris,' by W. Robinson, F. L. S., published by Mr. John Murray, London, there is contained much useful and interesting information on mushroom culture. The perusal of those chapters on this subject cannot fail to open to the English culturist quite new ideas as to the cultivation of this excellent vegetable. The mushroom caves at Montrouge, as described and illustrated, are quite a wonder. It appears that they are something like the shallow coal mines of our country, but have the great disadvantage of difficult access. The author, in describing them, says:

"Although we are from 70 to 80 feet below the surface of the ground, everything looks very neat—in fact, very much more so than could have been expected, not a particle of litter being met with. A certain length of bed is made every day in the year, and as they naturally finish one gallery, or series of galleries, at a time, the beds in each have a similar character. Once more we plunge into a passage dark as ink, and find ourselves between two lines of beds in full bearing. The beautiful white butter-like mushrooms appearing everywhere in profusion along the sides of the diminutive beds, something like the drills which farmers make for green crops. When I state that there are six or seven miles run of mushroom beds in the ramification of this cave, and that their owner is but one of a large class who devote themselves to mushroom culture, the reader will have some opportunity of judging of the extent to which it is carried on about Paris. These caves not only supply the wants of the city above them, but those of England and other countries also, large quantities

of preserved mushroom being exported, one house alone sending to our own country no less than 14,000 boxes annually."—*Cottage Gard.*

PHYLLOXERA VASTATRIX: or the new *Grape-vine Insect*.—We are very sorry to learn that this most formidable of all the enemies of the Grape-vine has made its appearance in England. We were the first to call attention to it in this country as being prevalent on the Continent; little did we then think it was at our doors. We make the following extract from a letter addressed to us by a gentleman in Kent: "My Vines have all grown well except two, a Mrs. Pince's Muscat and Meredith's Alicante; these did not move more than two or three inches, and I determined to take them up and examine the roots. Now the roots were swarming with Phylloxera vastatrix; there was also the winged kind. Your description in the May number of the *Gardener* is very accurate. With a glass of good power, you can see it in all its stages, but you can see it with the naked eye. It looks like grains of yellow sulphur in the crevices of the roots; with a higher power it resembles small yellow tortoises. It barks all the roots and destroys the Vine." The writer further expresses a fear that this pest is known to be in some nurseries, but is kept a secret. If so, no time should be lost in discovering which these are, and in getting it "stamped out," to use a phrase only too familiar to us.—*London Jour. of Hort.*

ASSAM TEA.—At a meeting of the Linnean Society of London recently, Mr. Wm. Bell said, in India the Assam was originally neglected for the China plant, but it has long since been found that the yield is greater in quantity, and the quality better, than that from the China plant when cultivated in Assam. It seems to have a rather tender constitution for the climate of the north-west and the Punjab. In the Deyrah Dhoon the points of the young wood are often killed back by the frost, besides losing nearly all their leaves. If not in a sheltered situation, the young leaves get scorched during the months of May and June by the hot winds that generally then prevail, although they are nothing compared to those experienced on the plains. For these reasons it is doubtful if it can ever be cultivated with success in North India. They cultivate extensively in Assam a well marked variety generally known as the hybrid. I have tried to

cross *T. assamica* with *T. Bohea* for the male parent; also *T. Bohea* with *T. assamica* for the male parent, but never could get a single fruit to set. However, some suspect that the so-called hybrid is only a sport from the original one, with a more compact habit and broader, thicker leaves. *T. assamica* is said to be not so well suited for the manufacture of green tea as the China plant; but whether that be a fact or only a supposition I cannot say. In testing samples of the tea manufactured from the Assam and China plants, weight for weight, the Assam surpasses the China both in strength and color of the infusion; in flavor, some think that of the China more delicate and agreeable. The out-turn (after infusion) of the Assam plant is much paler and generally more uniform than that of the China; perhaps from the fact, that in manufacturing it ferments more quickly and regularly than the China.

CHINESE TEAS.—At a recent meeting of the Linnean Society of London, Mr. Wm. Bell said in reference to Chinese tea culture in India: Whether *Thea Bohea* of botanists, and *T. viridis* be distinct species, or only varieties dependent on soil and climate for their existence, matters but little to the Indian tea manufacturer. So far as my experience goes, any variety of that commonly known as the China Tea plant which produces leaves suitable for the manufacture of a first-class black tea, is equally suitable for the production of a first class green tea. In some districts I am told that a custom prevails, as restrictive as *caste* is in India, which prevents men engaging in more than one kind of work. For instance, a box-maker is not permitted to try his hand at sheet-lead making, or lining or soldering down; neither is he permitted, even if out of employment, to try his hand at manufactures. Nor is a man who has served an apprenticeship to the manufacturing of green tea permitted to try the manufacturing of black. These facts may to some extent account for the plausible supposition, that green and black teas are the produce of two altogether different plants. There are, no doubt, a great number of varieties of *T. Bohea* in cultivation, some of them of little value—not worth cultivating, as a small papery leaf is not well suited for making a fine tea. Some of the small myrtle-leaved varieties are said to have a hardier constitution, and are better adapted for cultivating at high altitudes than

any of the large-leaved varieties, which are best suited for low, moist, warm localities. All of these different varieties seem to intermix or cross readily with each other; at least there is now a greater number of varieties in cultivation than were originally recognized.

CULTIVATION OF STRAWBERRIES IN EGYPT.—It may be interesting to some of your readers to know that Strawberries succeed well at this place. I have grown them with great success for the last two years, and find that young plants produce the best crops and the finest fruit. I put out young plants in September and October, and have gathered ripe fruit since Christmas up to the present time, from the open ground. The plants are now in a healthy and vigorous state, producing plenty of flowers and fruit of excellent quality. I have no doubt they will continue to produce fruit for the next two months, thus stretching over a period of seven months in full bearing. Is this not something extraordinary? [Yes.] The varieties are Ajax, British Queen, Keen's Seedling, La Constante, Omar Pasha, Admiral Dundas, and Sir C. Napier. *James Hardie, Palace Gardens, Gazeerah, Cairo, Egypt, June 2, in Gardener's Chronicle.*

VINE LEAVES TURNING THEIR UNDER SURFACE TO THE LIGHT.—I have a seedling Grape Vine here which has the strange peculiarity of turning the backs of all its leaves to the light, and no constraint will induce it to turn the upper side to the light. I send you leaves from it, which show how the leaf-stalks bend to effect the purpose. It is inarched on a Muscat, the leaves of which are in their normal state. On entering the house where it grows, the conclusion at once is suggested that some one has severed the Vine's connection with the earth, and that it is in the act of dying, yet it is perfectly healthy, though it has shown no fruit, while seedlings of the same batch are in fruit beside it. It is a cross between the Golden Champion and Black Alicante. I shall be glad to know if your readers have met with a vine having the same habit.—W. THOMSON, in *Gard. Chronicle*.

SOWING VERBENA SEED.—To have good strong plants for blooming early next year, you may sow the seed now. Well drain a seed pan, and fill it to three-fourths its depth with two-thirds turfy light loam and one third leaf mould, then to the rim, or nearly so, with the same soil sifted, adding one-sixth part of silver sand. Level

the surface by pressing it the bottom of a small flower pot, and scatter the seeds evenly, just covering them with fine soil. Give a gentle watering, place the pan in a cold frame or under a hand-glass, and shade from bright sun. Keep moist and close until the young plants appear, then admit a little air, increasing the amount with the advance in growth of the plants. When these are large enough to handle, they may be pricked off in pans at about 1½ to 2 inches apart, and kept rather close and shaded for a few days until established. Harden them well off, protecting them only from frost and heavy rains, and giving them all the air possible; before severe weather sets in, remove them to a shelf or light airy position in the greenhouse. In February or March the plants may be shortened to 2 or 3 inches, and cuttings made of the parts removed, which will strike freely in a mild hotbed. When the plants have made fresh shoots an inch long, they ought to be potted off singly, or placed 4 inches apart in pans, and shaded until established; then harden them off and remove them to a cold frame, protecting them from frost by a covering of mats. You may obtain one or more lots of cuttings from them, and these, with the old plants, will be fit for planting out in May. Seedling Verbenas are of little use for bedding except in mixed beds. The seed may be sown in March, and the plants from that sowing will be large enough for planting out at the end of May.—*English Journal of Horticulture.*

TOMATOES IN FRANCE.—In France the gardeners cut off the stems of the Tomato plants down to the first cluster of flowers which appear on them, thus impelling the sap into the buds below the cluster. When these appear, the branch to which they belong is topped down to their bud, and this is done five times successively. By this means the plants become stout dwarf bushes not over 18 inches high, and they are kept erect in the rows by sticks or strings. This treatment produces fruit which ripens early and is of excellent quality.

CULTURE OF GREENHOUSE CLIMBERS.—*The Gardener's Chronicle*, says: There are few greenhouse or conservatory climbers which do not require to be grown freely before they begin to show blooms; more especially does this apply to *Tacsonias*, such as the truly beautiful *Tacsonia Van Volxemi*, the many varieties of *Rhynchospermum*, *Solanum*, *Sollya*, *Kennedya*, and last,

though not least, *Lapageria*, which should all be permitted to make as free a growth as possible, a judicious system of training alone being necessary in their case.

CHERRIES AS SINGLE VERTICAL CORDONS.—The varieties best adapted for this very interesting mode of culture are those of the Duke tribe, such as the May Duke, Arch Duke, Empress Eugenie, Royal Duke, Nouvelle Royale, Duchesse de Palluan, and some others. Young pyramidal trees three feet apart should be planted in rows, and their side shoots pruned in to within two inches of their stems. They require the same summer pinching as that recommended by me for vertical cordon Pears, and should not be allowed to exceed eight or ten feet in height. Nothing can be more charming than these cordon Cherry trees. I have at this moment trees five years old, of the Duke tribe, with their bright ripe fruit hanging close to the stem, and shining through the net that protects them from the birds. The best of all protection, both from birds and wasps, is, however, Haythorn's netting, or coarse muslin, formed into a narrow bottomless bag, which should be let down gently over the tree, so as to leave the leading shoots out, and tied at the bottom and top; Duke Cherries may thus be preserved till August. I may mention here, that with these Cherry cordon trees, root-pruning or removal is seldom required, their vital force is so reduced by continuous pinching of the young shoots; but if a rich soil gives to much vigor, it may be practised. There are a few kinds of Plums, of upright growth, which may also be cultivated as vertical cordons. *Rivers' Miniature Fruit Garden.*

CYCLAMENS.—Seedling Cyclamens sown this spring should be pricked off into small pots, and be pushed along freely as soon as they show the second or third leaf. This is the real secret by which the fortunate few grow these lovely plants to perfection. There must be no rest—no check, until they are produced in full and abundant bloom. They like a nice brisk and moist growing temperature. Above all, they must be kept entirely free from scale, red spider, and especially thrip. When the latter attacks them, or gains a lodgment, they invariably become safely ensconced upon the crown, amongst the tender young leaves as they form, and these they oftentimes eat entirely away before they are observed by the naked eye. Thoroughly good drainage is an es-

sential point in the successful cultivation of these plants.—*Gardener's Chronicle.*

WINTERING GERANIUMS IN MOSS.—Last winter, we kept a number of large geraniums in dry moss, and propose to do the same thing this season, as it is a very cheap method of preserving plants not wanted to decorate the house in winter. The plants were taken up soon after the first light frost, the soil shaken from their roots, and then all the leaves and the young succulent branches removed. Some moss that had been previously taken from the swamp and thoroughly dried was spread over the bottom of a box; upon this we placed a layer of plants, then more moss, and so on alternately till the box was full. The box was then set away upon a shelf in a dry, warm cellar, where it remained undisturbed until spring. The plants came out in good condition, and have grown well this summer in the open ground, and are now in full bloom. There is danger of the plants rotting if the cellar is damp. A warm room will probably answer as well as a cellar.—*Exchange Paper.*

FILTHY DOGS AND CATS.—I think if your correspondent will try the following simple remedy he may save himself the trouble of taking cuts and bricks to the river. Let him purchase a few ounces of cayenne pepper, put it in a pepper box, and the last thing before dark, dredge the pepper lightly all over the plants liable to their beastly attacks. A calm and dry night will be the best for doing it, and let it be repeated every few nights, especially after rain. I saw this remedy tried some years ago with effect. A large yard dog when let loose in the morning would go to a fine young plant of *Laurustinus*, and back himself right into the middle of the bush; this was rather an annoyance to the gardener, who thought of the remedy as above, and applied it as I have stated with the most complete success. A man had to go and open the gate every morning after that to let "Bingo" out into the road, for neither that plant nor any other would ever serve Bingo's purpose afterwards. If your correspondent had seen him try every corner of that garden to get out after being cayenned by the *Laurustinus*, I think he would have concluded that Bingo did not like it, or that he was mad, as the owner thought him at first.—ROBIN ROVE, in *Cot'age Gardener*.

CYANOPHYLLUM MAGNIFICUM TREATMENT—
The plant is an evergreen. The shrivelling and falling of the leaves is owing to a sudden change of temperature, probably from cold. During the winter no more water should be given than will keep the soil just moist and the foliage fresh; indeed, the plant ought to be kept dry, not causing the leaves to fall or the wood to shrivel. A temperature of 55° or 60° at night is suitable until February, when an increase of temperature should be given, and it may be gradually raised to 60° or 65° at night, 70° to 75° by day without sun, and 80° to 85° with sun and abundance of air. A moist atmosphere should be maintained

by frequently sprinkling the paths, stages, walls, &c., but avoid wetting the foliage, and slight shade ought to be afforded from bright sun. The plant should have abundance of room, and light on all sides, so as to keep it from growing unequally. Pot it in March or April when growth commences, using a compost of four parts fibrous loam, two parts leaf mould, two parts sandy peat, one part old cow dung, one part charcoal, in lumps from the size of a pea to a hazel nut, and one part silver sand, the whole well mixed. Do not sift the compost, but tear it in pieces, and make rather fine, affording extra drainage.—*London Journal of Horticulture.*

HORTICULTURAL NOTICES.

FRUIT GROWER'S SOCIETY OF PENNA

The annual meeting this season will be held at Lancaster, Pa., commencing on the 19th of January. No better place could be selected, as it is in one of the most intelligent and successful fruit centers; and those who want to know "how to grow fruit," will certainly be there. From all we can learn there will be a very full attendance.

LEAVENWORTH CO., (KANSAS) HORTICULTURAL SOCIETY.

At a recent meeting of this Society, the apple blight came up for consideration. When we first noticed it in the *Gardener's Monthly* on our return from that section, three years ago, few who read about it considered it a matter of much importance. At this meeting Mr. Carney said the apple blight commenced with him in '65, after a heavy warm rain, and had been on the increase until this year. It commenced on the young growth; he cut it out at first, but found it did no good. The Keswick Codlin, which blighted very badly, this year appeared to recover. The Red Astrachan, Fameuse and Summer Pearmain did not blight but little.

Mr. Cadogan, said the Rambo, Yellow Bell flower and Jonathan blighted the worst, he thought it was a living plant, a fungus. He said Dr. Hull of Alton, Ills., had propagated it by inoculation and he had also this season done the same by macerating the deceased wood and tying it on a healthy tree. He thought Carbolic Acid, had proved a remedy, he also tried a liquid from

old rusty Iron, and he thought he saved a tree by it.

Dr. Housely thought it caused by an insect. It was nonsense to talk about it being produced by a fungus. Stop your trees from growing too fast, and you will never hear of pear blight.

Dr. Stayman did not favor the fungoid theory, as producing the disease, because he found under the microscope the same fungoid development in the healthy as well as the unhealthy; consequently he thought we had no right to infer from fungus found on blighted trees, that it was the cause, while the same was found on trees not blighted. He favored the theory of plethora, and for the want of a name, he called it vegetable apoplexy, as they are struck dead suddenly in the appearance of full health.

At this point the meeting became animated, when a conversational discussion ensued, and ended in the following resolutions by Mr. Barnes:

1. *Resolved*, That it is the sense of this society, from investigation of the facts as developed at present, that the Apple tree blight and the Pear tree blight are distinct diseases, and produced by distinct causes. Rejected; one vote affirming.

2. *Resolved*, That it is the sense of this society that the immediate cause of the Pear tree blight is not, as yet, fully explained by any theory produced before us, but that treatment inducing a slow, healthy growth of the tree appears to be almost a sure preventive. Carried by a unanimous vote.



on the Grounds of J. M. Aertsen Esq. Germantown, Phila. *Magnolia* expressly for the *Gardener's Monthly*.
H E M L O C K E N D G E

The Gardener's Monthly.

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XII. FEBRUARY, 1870. New Series, Vol. III. No. 2.

HINTS FOR FEBRUARY.

FLOWER GARDEN AND PLEASURE GROUNDS.

Bearing our Southern friends in mind, so many of whom are again amongst our regular readers, we may say here, what for northern readers would be better said next month, that all pruning operations be ended as soon as possible, lawns rolled as soon as they can be after the frost leaves them, and while still wet, in order to fill up the inequalities, apply a top dressing of bone dust, guano, wood ashes, or whatever other "seedless" manure may be adopted, before the rolling. Arrangements should be made also for spring planting, by getting good soil hauled near where it may be wanted, for it is a sad loss of time to plant in poor ground, and the holes may even now be dug and the new soil put in. Planting, however, should not be done until the soil is quite dry, so that the earth can be crushed finely in about the roots by the feet, instead of being pressed closer together. Avoid watering the roots at planting. If they appear dry, dip them in a tub of water if small, or sprinkle with a water pot if large, before setting. The soil immediately about the fibres will then adhere to them, and while the water thus benefits, the soil is not rendered a mass of mud. If the trees appear very dry, prune accordingly to the degree of probable injury. If a tree have a large mass of fibrous roots, and these not dry, and the top not very large, no pruning will be necessary. If the roots are injured, prune them too, a little. If the injury to the root or top be very great, prune the top severely. No tree or shrub need die of trans-

planting, no matter how great the injury, unless entirely dead. If there be any life at all a severe pruning will save it. It is often recommended to bury up entirely in soil for a few days plants that become dry somewhat during removal, which usually does pretty well; but we would prefer to prune away a portion of the branches.

For a collection of desirable trees, not particularly scarce, but which could be had in most nurseries, we would select the Norway, Red, Sycamore and Sugar Maples; English Horse-Chesnut, where the soil is not too hot and dry; English White Birch; English Hornbeam, a rather small tree; Judas tree, either English or American; European Beech, also the Blood leaved variety; European Ash, including the Weeping variety and Flowering Ash (*ornus*); European Larch, and the American to make a pretty tree when mature; the Sweet Gum; *Magnolia tripetala*; Mimosa tree (*Julibrissin*), south of Philadelphia; Paulownia, for those who like sweet or showy flowers regardless of an ugly growth; Oriental Plane for grandeur and rapid growth; and of the Oaks, the English, Scarlet, Mossy cup and Swamp White are the best. The deciduous Cypress, American Linden, and where the Elm-worm is not troublesome, the American Elm.

There are few things which add more to the beauty and interest of a place at all seasons of the year than the judicious employment of hardy flowering shrubs.

Of those which are beautiful and can be readily and cheaply obtained, we may name Dwarf



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Horsé-Chestnut, flowering in June; the different Dogwoods, *Cornus Florida*, *C. sanguinea*, *C. mascula*, *C. alba*, and particularly the variegated English; the Hawthorns are very pretty when in a cool soil and situation, partially shaded from the sun in summer—there are many fine double varieties of the English which do best when grafted on American stocks: the Double White and Double Red and Pink are particularly desirable; the Laburnum is rather a strong-growing shrub, also wanting a cool soil and situation. When the season happens favorably, it is the most ornamental shrub we have. The Sea Buckthorn is very desirable for its pretty silver foliage; but it should not be set upon a lawn, as it suckers somewhat; the shrubby border is the place for it. Of the silver-leaved class the Oleasters are very desirable. The yellow is not hardy north of New York; but the small-leaved (*Eleagnus parvifolia*) is perfectly so; it has in addition very sweet flowers and pretty berries to recommend it. The Silver Bell or Snow-drop tree is also a large shrub; but its early white flowers give it a claim on most shrubberies, especially as it blooms quite young. The Magnolias *purpurea* and *glaucæ* are very desirable. The latter, as it grows in swamps when wild, is not often seen cultivated, as it is supposed it will not do in dry soil. This is a mistake. In a deep rich soil it thrives amazingly. It requires a free use of the pruning knife on transplanting. The European Bird Cherry is one of the handsomest strong-growing shrubs of its season—June. For a single specimen on a lawn it is not to be excelled. Its habit is good, and its flowering abundant; its berries are also very enticing to birds, which form no mean addition to the pleasure of a garden. The *Pyrus japonica* every knows; the white variety is desirable, though it is more pink than white. The Mist tree is indispensable, from its striking peculiarity of flowering. The White Fringe, with leaves like the Lilac, and large pendant clusters of white flowers, no less so. There are several Willows which, as shrubs, we would on no account be without, for their flowers large and sweet, so early that the first sun that thaws the March snow, brings them out also. The Goat Willow and the Villars Willow—male varieties of course—are especially to be mentioned. The Indian Cherry (*Amelanchier*), following the Willow in flowering and very beautiful; and the Double Pink, and Double White Dwarf Almond, are also early and pretty. The Yellow, White and Crimson Azaleas, are magnificent,

but so scarce in nurseries, we are almost afraid to have them in this list. The different Berberries can be scarcely spared for their pretty red berries in fall. The Sweet Shrub or Virginia Calycanthus, is one of the sweetest of all flowering shrubs; though its color is dull. The Bladder Senna is very desirable for its love of our summer heat, flowering profusely during July and August. The Mezereon is particularly sweet and attractive, blooming very early, but like the Azalea, rather scarce in Nurseries.

The Deutzias are well known,—*scabra* and *gracilis* are the two best. The Burning bushes are beautiful in the fall,—the Mississippi Purple (*atropurpurea*), and the European, are two most desirable. The Golden Bell and early Spiræas, (as *prunifolia*, *Blumeana* and *Reevesii*), every one wants as well as the *Weigelia rosea*. The public taste is divided on the *Althea*, yet there are few gardeners without some one variety or other. The variegated leaved is scarce, but as desirable as any shrub grown. The Oak-leaved Hydrangea makes a very striking object in a collection; and the common garden Hydrangea indispensable for dense shade. For flowering in August, and for dwarf compact habit, *Hypericum Kalmianum*, or the *A. prolificum*, is perhaps unrivalled. A rather scarce, but particularly pretty native shrub is *Itea Virginica*, which, like the *Magnolia glauca*, a swamp plant, cultivates well in dry ground. The *Jasminum nudiflorum* should be trained to a stiff stake, and get a pruning with the shears twice a year; it then grows very compact, and will support itself after the stake rots away; then it makes one of the prettiest shrubby bushes imaginable. As an oriental looking plant, the common privet is good; indeed, its pure white flowers, fragrant as they are, and jet black berries, always attract attention. It is a plant that will thrive in the most gravelly soils. The Upright Honeysuckles are perhaps the most common in gardens; the Tartarian deservedly so—few things are prettier. The Fly Honeysuckle is also desirable, for though the flowers are not quite as showy as the Tartarian, the habit is most graceful. Then the Mock Oranges or *Philadelphus*, though all white-flowering, afford, by their diversity of habit, many good shrubs. The sweet one, (*P. coronarius*), one of the oldest and best, is least common. The Large flowered and Gordon's Upright are the two next best. The Tree Pæonies, though rather expensive, every one wants. The Red and White Snowberry make good show in winter

by their interesting fruit. As for the Lilacs, we need scarcely recommend them; common as they are, no garden is complete without them. The Persian is a very distinct one from the common kinds. There are many new varieties, but they are but shades of old colors.

The Tamarix is not often seen, but a great favorite of ours. In the class of *Viburnums* the Snowball is well known; also the high bush or false Cranberry, the Black Haw and the Way-faring tree are the best.

FRUIT GARDEN.

Pruning of fruit trees, when required, should be proceeded with at favorable opportunities.

All fruit trees like a rather dry, rich soil. On a cold clayey bottom, diseases are usually frequent.

As to whether underdraining, although a benefit in the abstract, is sufficiently so as to be a profitable operation in many cases, is a question deserving some thought before embarking largely on labor and materials, costing say a dollar against an improvement not worth more than one or two per cent. per annum, is not the most judicious expenditure. When one has a very wet piece of ground there can be no mistake about the value of underdraining it, providing one has no other ground fit for fruit trees that is not wet; but when the ground is naturally in fair condition, it would be well to go by the advice of some practical man, or at least experiment on a small scale first, before embarking largely in the improvement.

Do not plant deep; cut off tap roots, and do all you can to encourage surface fibres. Surface manuring is the best way of doing this after the tree is planted. Do not allow anything to grow vigorously around your trees the first year of planting, nor allow the soil to become hard or dry. Let trees branch low, and prune a little at transplanting.

The rule, in pruning grape-vines, is to shorten the shoots in proportion to their strength; but, if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the

only object of pruning in any case is to get strong shoots to push where they may be desired, or to add to the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

Manuring of grapes should be regulated by the nature of the soil. If it be damp—in most cases a bad condition for grape-growing—stable manure in great quantities means diseased vines. In dry ground, it has a beneficial effect. Many persons of small places have grapes in damp ground, or can have none. They must take care to keep the roots near the surface; never crop the ground about them to destroy the small fibres, if it can be avoided; and even good may often follow, when the vines seem failing, to carefully follow up the roots, lift near the surface, and encourage, as much as possible, those remaining there. Wood-ashes, bone-dust, and such like fertilizers are best for grape vines in low ground.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence in producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will, of course, not then bear the next season after planting. But this is a benefit; no fruit tree should be allowed to bear the same season.

VEGETABLE GARDEN.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden,—if the watching of the beautiful processes of nature in furnishing him food, and the many lessons they teach him, which he in a thousand ways can so pleasurably and profitably apply, have no charms or attraction for him—he had better give up gardening, for assuredly in most cases,—even to 99 in 100 instances,—the market gardener will bring the vegetables to his own door cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords; when it ceases to do this, it should be abandoned.

A south-eastern aspect is best for a hot-bed,

and it should be well sheltered from winds on the cold quarter.

Those who have hot-beds will now sow Tomatoes, Egg-plants, Peppers, and other vegetables that can be forwarded by this means; and those who have not, will sow them in boxes or pans, and forward them in windows. Every garden ought to have at least a few hot-bed sash to forward early vegetables; for if they have no means of applying artificial heat to them, the sash will of itself forward some things considerably.

All those kinds that are grown for their leaves or stems, require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong cabbage, lettuce, spinach, etc. The other class which is grown principally for its seeds or pods, as beans, peas, etc., do not require much manure of this character, in fact they are injured by it. It causes too great a growth of stem and leaf, and the earliness,—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is best that they have it well-rotted and

decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung; though to the smell no trace of "ammonia" remains in it.

Many parties like to have Turnips sown in spring. The only way to succeed with them is to sow as early as possible, and on a very rich piece of ground, where they may grow speedily. If they do not swell before the hot weather comes, they will certainly run to seed.

About the middle or end of the month, or still later at the North—say the middle of March—Celery and late Cabbage may be sown. Here we usually sow the second week in March.

All gardens should have beds of herbs. They are always looked for in the Fall, and nearly always forgotten in the Spring. Now is the time to plant Thyme, Sage, Mint, Balm, and other perennial herbs, and Parsley and other seeds of hardy kinds may be sown. When we say now, it is of course understood to mean where the frost has evidently broken up for the season. Our readers in less favored climes will not forget when it does.

COMMUNICATIONS.

FRUIT TREES AND FUNGI.

BY JOHN L. RUSSELL, PROF. BOTANY TO
Mass. Hort. Soc'y. Honorary Member of Illinois State Horticultural Society, &c.

The well-known, or it may be, supposed influence of the fungi on vegetation, frequently gives rise to many a very good theory, which facts do not always bear out. Intended to destroy and reduce to original elements, these insidious and patient laborers in the economy of Nature generally are found on substances in which are traces of incipient decay. Some, however, rioting in the juicy tissues of leaves and fruits, quickly appropriate the saccharine and amylaceous portions and fill the cells with numerous fibres, commonly known as mouldiness. Others deeply buried in the earth, attack the fibrous roots of different kinds of trees, and communicate disease by slow processes to the trunk, branches and twigs, so that premature death or protracted sickness succeeds. In such cases, the entire soil becomes penetrated with the living and enduring

principle of the fungus, and would be unfit for replanting, without some corrective, or better, by total removal, and the substitution of new and purer earth. The mouldiness of the leaves of the garden pea, on the foliage of the phlox, of the lilac, etc., ruining the effect of the plant, and depriving it of its very leaves, the stems becoming bare and unsightly, are among those which permeate the tissues and spreading over the surfaces, close effectually the breathing pores, so that suffocation is the result. The same is seen on the fruit of the gooseberry, and to some extent on the berries of the grape, especially of the hardier kinds. In the cultivation of the more tender grapes under glass, the gardener has to contend with other species, imported accidentally with his foreign vines; for every country has its own fungi, and almost every species of plant the wide world over, has some one peculiar to itself. So similar in general appearance and external character, it is only known to the mycologist that

though similar, yet they are specifically distinct; and so inclined to counterfeit and imitate, that forms entirely innocuous and unimportant are mistaken for those mischievous parasites.

The Fire-blight of the Pear tree, for example, has given rise to many conjectures respecting its origin, nature and effects. "I send you," writes a friend, "specimens of a fungus which seems to be a Pear blight, 'fire-blight' on a small scale. It keeps the tree very poor and scrubby." Surprised to find such a dangerous looking fungus on the still living shoots of the pear, it was submitted to a careful investigation, to ascertain how this could be. Removing the outer pellicle or skin of the bark, I found the tissue just beneath, entirely altered by some cause, and the cells filled with a brown grumose mass. It had all the appearance of the brown spots just under the skin of the Baldwin apple, and which is known as the bitter rot. Not a trace of the Mycelium or fibrous system of a fungus existed, and in close proximity and beneath was perfectly healthy tissue. It was this partial destruction that was so remarkable, quite unlike the operation of fungi. By this lower layer of parenchymatous or pulpy bark, the branch was able to maintain its vitality and to develop healthy buds. But there were the pustules cracked on their tops, and the dehiscence betraying a black layer, so that they had the appearance of the fruit vessel (*perithecium*) of a species of veritable fungus. The highest powers of the microscope failed to detect the spores or seeds.

Here, then, was a fine example of a pseudo-fungus, something simulating a mischievous plant. Now what is bitter-rot? Is it not some chemical change in the maturing fruit? In a similar way I explain the brown mass which fills the diseased cells of the Pear-tree bark: in the instance before me, the chlorophyll in one case, and the starch in the other, changing into something else. Every cultivator knows the necessity of leaves in ripening fruits, and how the trunks of the Apple trees and of the Pear trees become dead and yellow, and the outside dry and black, by too direct horizontal rays of the summer afternoon's sun. And so we have an explanation, that disease may be induced as well by external causes as by internal fungal action.

To these pseudo-fungi, Mycologists have applied the name *Nosophleæ*, bark disease. The illustrious Fries, of Sweden, has specified many which have been described by the older botanists

as genuine fungi,—on the bark of the Apple tree in raised pustules, emitting abundance of cells as fine as dust (*Lycoperdi Mali*, Wiegell); on the bark of the Willow (*Hystorium salicis*, Wormskiold); of the Alder (*Unedo alnea*, Persoon); to which may be added the Pear bark before us, and various colored and singular leaf excrescences to similar causes. Promote a healthier growth and the trouble will vanish.

LOCHIEL, NEAR HARRISBURG.

BY J. M.

The residence and grounds of J. D. Cameron, Esq., at Harrisburg, are among the attractions of the place. A great deal of money has been spent of late by him in improvements, by planting largely of trees, and in the erection some few years ago, of several fine glass structures. Passing through them lately, I found them well kept, and the grounds had a neat appearance. I understand that still further improvements are in contemplation, which will greatly enhance the beauty of the estate. Situated as it is on high ground, everlooking the Susquehanna river, and commanding a view for miles around, it is capable of being made one of the finest places in the country.

THE GILLIFLOWER.

BY JOSEPH AMRAM.

When many years ago I visited England, few things interested me more than the beautiful Stocks, or as the English called them Gilliflowers,—and well I remember the interest with which on my return I watched the gradual development of the numerous varieties of seeds I brought back with me. The most common kind then grown in the old country was the Brompton Stock, which, if I remember right, was what was chiefly known as "Gilly flower." This kind is the large dark rosy one, with a strong shrubby habit. Most of the English Cottagers had a fondness for flowers, and dilapidated crockery were seemed to be streaks of good luck to grow flowers by. Flower pots were rare, but cracked pipkins and such kinds of utensils monopolized the honors of plant growing. In these a daily Rose, a Wallflower, or a Gilliflower was sure to be grown, let what other flowers might be wanting. This bushy "Gilliflower," which after associating more with the professional gardeners, I got to call Brompton stock, was raised by them from cuttings, and was always thus perpetuated. I

doubt whether any of the hundreds I saw were raised from seed, and yet we are told this variety of stock is a *biennial*. This has always been a puzzle to me on the theory of Knight, that a cutting is but a portion of an individual plant, and cannot live longer than the individual. Here is a plant which naturally dies in a couple of years, and yet by annually striking cuttings the same plant can be reconstructed so as to last for a century. But this is only in passing, for the main point I want to suggest is why not introduce this old fashioned plan of propagating this beautiful plant. Now we depend on seeds, and have the half to come but single rubbish, and the few we do get double do not seem to live long. I think I hear the Editor say, "what nonsense! a plant from a seed dying sooner or easier than one from a cutting;" but for all I hold to my opinion, that it is so in this case. I don't know why. Perhaps it is that the continued reproduction from cuttings had somewhat changed the plant's temporary nature and made it feel more like apeing the ways, as it had been made somewhat to partake, of the dignity of a perennial plant. But I am a poor hand for reasons; when I know that a fact's a fact, it matters not how many so-called laws of philosophy are against me. And I do know, and am sure that I have never had anything like the luck with my stocks from seed that these old English Cottagers had with their cutting plants.

I wish we had here in Maryland a Horticultural Society like yours in Philadelphia, and that I was on the committee for premiums. Would'nt there be some fun at my suggestions? Instead of prizes for Poly bolbions and Bolly poniums and other new fangled trash, I would have offers for Heartseases and Wallflowers, and Candy-tuft, and Ragged robbins, and even the old Canterbury Bells should not be forgotten. Above all should these old fashion Brompton Gilliflowers have an honored position in my schedule. Only those should have anything who grew them well,—and growing well should mean such nice things as the old English grannies raised. If modern gardeners cannot beat their grandmothers, where's the use?

I have often wondered where our name of "Stock" came from. Gilliflower I was told was a corruption "July" flower,—because these old fashioned kinds were the pride of the gardens about that season; but no one could tell me anything about "Stock." Our modern term "Stock Gilly" seems to me meaningless; but perhaps that is no matter about raising these Brompton

Stocks from seed. The books and guides tell us to sow in the fall, and they will bloom in the spring. I never had much luck in this way. I usually sow them in spring the same time as other annuals, and dibble them out after they are about one inch high into rich garden ground, and in the fall lift them carefully and pot into four or six inch pots. Then they bloom beautifully in the spring, and though I feel a twinge of sadness when I compare them with the lovely things I used to see on the old English windows; still they are pretty, and others who have not had the chance I had, to see better ones, call them beautiful.

The annual Stocks from Ten-week to other varieties of German conception, are very well in their way; but for me they may all go while I can get the lovely Bromptons. No great variety of color it is true; but what of that, give us one lovely form, and stick to it through life.

CLIMBING PLANTS.

BY J. H., OLD WESTBURY, N. Y.

We are pleased to observe the growing taste to cultivate climbing plants around the door or porch of those in humble life, no less than the more spacious piazza or veranda of the rich. Indeed it affords as much delight to notice the neatly trained Morning-Glory turning around the strings that meet over the door, or the hop vine or scarlet runner beans, where they give an evidence of taste and an appreciation of the beautiful, among those who go to their daily toil, as when we see the elaborate lattice covered with the rarer beauties of Flora. Climbing plants can be easily grown and in abundant variety. Passing by the hard wood climbers such as Wisterias and Honeysuckles, which deserve an article by themselves, we will notice those which shoot up and die in a season. Few are aware that the Chinese Yam is a pretty, desirable climber. We have seen it cover a trellis of two stories in height, and few plants were more attractive; and in the latter part of the season the vine is full of the little balls like small potatoes, which are quite curious and interesting. If these balls are planted they will grow and produce young plants; they will need protection in winter, by covering for a few years. After they have penetrated one or two feet they will be out of the reach of frost. The Madeira-vine is well known and is, to those that will give the care of digging up the plants and protecting them, quite desira-

ble. A species of *Tropæolum*, the Canary bird flower, makes a very ornamental climber, but the best we have ever seen of these deciduous climbers is the *Cobea scandens*; for two summers we have noticed vines that covered the trellis of the piazza of the residence of W. C. Bryant at Roslyn, that grew to the height of twenty feet and met over the entrance at the top; they must have extended three or more feet in width, and when covered with their rich blue flowers and the flowing branches with their delicate tendrils, excited our highest admiration. The seed of the tubers of this class of climbers should be started early in spring under glass, as the season scarcely ever is long enough to develop their perfections and the soil should be rich and of the best quality.

We had a plant in our garden this summer that encircled a cedar stake six or seven feet in height and the branches left about one foot long at the bottom of the pole and at the top four inches, it covered it completely, and the branches or spray if that is a proper term, swept down, and when gently moved by the wind, was exceedingly pretty. The flowers are about the size of the biennial Canterbury-bell of the gardens, and when it first opens, is greenish, changing in a day or two to a purplish blue. The seeds are for sale by nearly all seedsmen, and are easily grown. There are many other of the annual climbers worthy of notice, the Morning Glory, *Maurandia*, *Ipomœa*, &c., that with a little care and training add much to the beauty and enjoyment of our country homes. And how cheering and invigorating to him that labors, when he returns to his family and his home, to see as he enters his door, instead of the naked, bare boards or wall, the neatly trained vine sending forth its fragrant odor or bright gems of flowers amid the leaves.

LETTERS FROM THE PACIFIC COAST.

No. II.

YO SEMITE VALLEY, CAL., Oct. 16th, 1869.

Dear Monthly: My last was dated at Salt Lake City, whence we left on the morning of Oct. 13th, arriving safely at Wintah Station, rejoiced to find ourselves once more comfortably seated in the commodious "Silver Palace Cars," and renewing our western journey.

After leaving the hilly section, the country soon becomes very uninteresting, with undulating mounds in every direction, almost devoid of veg-

etation at this season of the year. Stopping at Ogden for a few minutes, which place will eventually be the connecting point between the Union Pacific and Central Pacific Railroads, we pass rapidly on by the famous Hot Sulphur Springs, with their accompaniment of vapors and nauseous odors. Occasionally glimpses are caught of the Great Salt Lake, its margin approaching and receding as we wind along our course; and small Mormon towns are still seen with their neat little irrigated farms surrounding the modest one-story adobe mansions.

We slowly toil up the steep grade, until we arrive at Promontory Point, the present terminus of the Union Pacific Railroad, and where the last tie was laid and the last spike driven,—thus connecting the Atlantic and Pacific coasts by a continuous line of railway travel. During the night we pass over the Great American Desert, about 60 miles square,—a vast sandy plain, without a green twig to enliven the monotonous level waste. We alight for breakfast at Elko. On the morning of the 14th, and on once more through the wild treeless region of Nevada. The Indians are at every station,—dirty, degraded, and arant beggars,—a fearful burlesque on the fanciful creations of Cooper, and sadly degenerated from the Delaware braves whose memories are cherished by every lover of Wm. Penn. What a sad commentary for the advocates of the enlightening influences of the higher caste of civilization. For here we see these poor semi-barbarians, who are exposed to the influences of a lawless class of white inhabitants, carelessly disregarding all virtuous example, whilst eagerly seeking initiation into the mysteries of every species of vice and immorality. That the followers of Penn may be encouraged to labor for the regeneration of the red race, is the writer's heartfelt wish.

The Chinese, with their semi-European costumes, and inevitable queues wound around their heads, are at work on the roadside by hundreds.

Passing Humboldt Canon,—a weak imitation of Weber and Echo, yet quite beautiful in the distance, we stop at Humboldt City for supper. Near here are extensive sulphur mines of great value; and not many miles distant, silver is being taken out with encouraging results. In the night we enter California, and soon pass Downer Lake, a perfect gem of a pure mountain water, clear as crystal, mirroring on its surface the immense trees by which it is surrounded. Towards morning on the Sierra Nevada mountains, we arrive at Summit Station, 7,042 feet elevation.

where we pass through numerous tunnels, one of which is 1,700 feet long, and awake to find ourselves in the immense snow-sheds. These structures extend for 40 miles on the cold bleak mountain sides, thus affording ample protection from the awful blockades and avalanches, for which this range is so justly noted. Breakfasting at Cisco, on the morning of the 15th, we soon after emerge from our artificial canopy, and again enjoy with keenest satisfaction the glorious view presented. On every side the mountains are clothed in verdure of deepest green, and the myriad spires of Pine and Fir impart a peculiar air of picturesque beauty to the scene. The declivity from here to the plains below, is an easy regular grade, and our train runs thundering on over skeleton bridges and through tunnels with marvelous rapidity. We wind around the base of some mountain spur, looking hundreds of feet into the valley below, until ones head becomes giddy with the sight; and then in through the deep cut, and out again to a broad plateau,—every where, above, below, on either side, we see enormous trees towering high above, and shrubs of every hue beneath. On the higher altitudes we notice the heavy-wooded Pine (*P. ponderosa*), and the Douglass' Spruce (*Abies Douglassii*), and as we descend to the Foot Hills, the lovely Sabine's Pine (*P. Sabiniana*), with its huge cones persistent for years, hanging in clusters from its branches. Large bushes of the Californian Horse Chestnut (*Æsculus Californica*), with its wealth of fruit; many species of *Ceanothus*; the Manzanita (*Arctostaphylos glaucus*), with red bark, shining leaves, and orange-colored fruit; Oaks with holly-like foliage; Photinia, with great clusters of intense scarlet berries, and attractive glossy foliage; are among the many objects of botanical interest. We have only time to glance hurriedly at each, as we rush swiftly by one after another beautiful feature, longing for the time when we shall exchange to the more wearisome but convenient stage-coach. We notice the flumes conveying the water to the gold-diggers in the many rich gulches; and at Gold Run the miners are planting their little cultivated "patches" with trees and vines, which so soon in this climate repays their labor with rich rewards of beautiful fruit.

As we come on to the level plains, the whole face of the country is entirely changed. Giant old Live Oaks (*Quercus agrifolia*, and *Q. Hindsii*), all leaning in one direction, gnarled and stunted in their growth, are on every hand, scattered

with a curious regularity, and resembling the old fruit orchards of our far-away homes. At noon the City of Sacramento, with its massive capitol building, and many steeples, appears in sight, and soon we have stopped in the capacious depot. Our stay is of short duration, and as we slowly glide through the suburbs of the place, the thrifty Fig, Apple, Pear, and Peach trees, as well as the numerous vineyards, are marked features in the landscape. To one like myself, who has been accustomed to see the few bunches of foreign grapes, grown with the greatest care and attention under glass, now suddenly brought in contact with the same varieties laying piled up in careless confusion, bushels and bushels together, and so cheap that "two bits" (25 cents), will purchase enough to satisfy a party of three or four lovers of the commodity, appears almost like fairy land. And then such Apples and Pears as we see "peddled" through the cars,—noble high-colored specimens, such as would put our "first premium plates" to the blush, as far as appearance and size are concerned; but, alas! the flavor is deficient. We miss the rich buttery texture, the delightful aroma, and peculiar spicy flavor of our best Eastern fruits.

After leaving Sacramento, we do not see much to interest us in our ride across the level plains, and towards evening we arrive at Stockton, where we disembark once more, with the intention of proceeding to the Yo Semite Valley from this point. A hurried walk around the town, shows evidence of a thriving business locality. We notice in the public square four splendid specimens of the Agave Americana (popularly *Century Plant*), each ten feet high, and fourteen feet across; several Cupressus sempervirens (*Common Cypress*), like great green columns, 25 or 30 feet high, and then the large flourishing trees of Melia Azederac, show conclusively that they feel perfectly at home in this congenial climate.

All our surroundings constantly remind us that we are in a new country, just as distinct as it is possible for two continents to appear, instead of being only on different coasts of the same land. The animals, the birds, the insects, the fishes, the minerals, the plants, and, yes, the people, too, cosmopolitan as all the towns of California strictly are,—causing us even to exchange our boasted currency for coin before we could purchase a single article,—not only refusing to accept our "Greenbacks," but positively ignoring all the lesser coins,—all, every thing, and every body, differs from our old Eastern home. Such

is California to-day. But a new era is dawning, with the advent of rail-road facilities, and the influx of a new emigration; and before many months shall have rolled over, these obsolete customs, and cherished ideas, shall be as surely obliterated, as that the sun will rise and set in its regular routine.

On the morning of the 16th, our party, in three substantial coaches, depart on our long and dusty ride to the Foot Hills. The modern Jehu, as in the old, old times, when coaches were the thing, and cars a chimerical vision in the brain of a progressive dreamer, mounts the box with all the ancient pride of a veritable Tony Weller, flourishes his whip, and we are off at a spanking rate through the streets. Once beyond the suburbs, and vast fields of yellow stubble tell the tale of plenty throughout all the region of the San Joaquin Valley. No active vegetation is seen at this season of the year, save the old gnarled Live Oaks scattered here and there, singly and in groups, as on the lawn of old English parks. The lively little Ground Squirrels, like the Prairie Dogs in habit, are running from mound to mound; and the Burrowing Owls, with sedate and sleepy stare, gaze at us as we pass. The dense clouds of dust, penetrating and almost suffocating, as the heavy volumes roll and encompass stage and passengers, render the ride almost intolerable; but with pleasant visions of the promised land ahead, we draw down hat-rims, and choke and cough, and gasp, until a turn of the road allows us a short respite. We stop to take on fresh horses. A Chinaman and wife are sitting beneath the porch, patiently awaiting our arrival. Our drivers, with a few choice oaths (almost universal here), unceremoniously toss the female on the top of one coach, and systematically push the man into the "boot," amongst the trunks of another; and after tying him securely to prevent accidents, enjoy a loud laugh at their rare invention, and unappreciated talent for business. Such is a specimen of the respect usually paid this race by their predominant white brethren. We arrive at Knight's Ferry for dinner, and soon thereafter enter the hilly country,—the long-looked for region, where the naturalist finds new wonders at every step. Gladly we accept the invitation to alight and walk up the hills. In a group of Oaks we notice three new species, to us, and quickly specimens are transferred to pockets. Scarcely a tree but what is festooned with the green coral like Mistletoe (*Phoradendron flavescens*); and the long delicate

moss hanging like floss-silk, sways gently and gracefully in the passing breeze.

In the gloaming, we arrive at Chinese Camp to supper. This town is appropriately named, for passing by hut after hut, and cabin after cabin, we are irresistibly led to believe that we are in the Celestial Empire in reality. As we ford the Tuolumne River on a flat-boat, the bright full moon sheds its clear rays over hilltop and valley, and in a short time we commence the arduous ascent of the Sierra Nevada. Clambering up the mountain path in advance of the cumbersome, slow-toiling stage, we are well repaid for our walk. The Pinus Sabiniana, a second-class tree in size, with broad spreading top,—unlike the family in this respect, is scattered plentifully on every side. The leaves are very attractive in appearance, of a pale bluish tint, long, slender, and very delicate. Over the multitude of shrubs, a vigorous species of Clematis is climbing, and hanging in pretty festoons its wealth of silvery-white feathery carpels, looking like balls of down. And now Pinus ponderosa is seen above us, and we stop to admire its rough deeply-creased bark, and dark-green rigid foliage. Looking far up into their tops, one guesses in vain at their immense heights. But weary, sleepy, and almost exhausted with a long day's ride of 55 miles, we are quite ready for rest as we stop at Garrotte. Bright and early we are up on the morning of the 17th, and out to see the peculiar vegetation immediately surrounding us. Along the streams, though late in the season, we find the gorgeous scarlet Monkey-flower (*Mimulus cardinalis*) in bloom besides a yellow-flowering species, and a few other homely plants. Again we enter our coaches, and once more ascend the mountain, with an occasional walk up the longer grades. Here the trees are numerous and exceedingly interesting. Pinus Lambertiana (*Sugar Pine*), is becoming quite common, and the ground beneath them is covered with great long cones. Libocedrus decurrens rears its lofty shatterd head on every side, and Pinus ponderosa, and Abies Douglassii, with their monstrous bodies, are frequent sights. Along the streams, the beautiful Acer macrophyllum (*large-leaved Maple*), grows luxuriantly, six and seven feet in season, and the leaves enormously large. Cornus Nuttalli (*Nuttall's Dogwood*), with compact round heads of scarlet fruit, is also seen in similar situations. On the level flats, the Symphoricarpos racemosus (*Snowberry*), with its pure white berries, nod their welcome to us as we stop

to gather some brilliant crimson blossoms of the *Zauchneria Californica*. In a little glen we find a strong stem of the *Lilium Washingtonianum* (*Washington Lily*), a magnificent species; and bulb, and seed, is soon transferred to my already over crowded pockets, to keep company with a bright red species of *Castilleja* (possibly *C. hispida*). We find large patches of a handsome *Goodyera* (*G. Menziesii*), with delicately veined leaves,—a lovely Orchid; and close by along a stream, young trees of a peculiar *Alnus* are remarkable for their slender vigorous shoots.

Late in the afternoon our coaches arrive at the end of the constructed road, and we stop at Harding's rancho for the night. The proprietor, sole occupant of the place, although somewhat alarmed at the sudden increase of visitors, nevertheless makes us as comfortable as the circumstances will admit; and whilst a portion of the party are snugly ensconced in his barn amidst the hay, the rest are dreaming of home, as they snore out their discontent on the hard floor of his cabin. And this is California life, real and unvarnished. It is needless to add that our company required no calling in the morning. Soon after partaking of our homely yet wholesome meal, we mounted our little Mustangs, and set out in single file along the mountain trail for the valley. But we are not up to the summit by many a weary mile, as yet. As we slowly wind along the path, now clambering over and among huge rocks, our sure footed little steeds carrying us over the dangerous spots with self-reliant air; and then with an easy *lope*, at a quickened pace along the level stretch, or down the gentle declivity, until we reach a small grove of "Big Trees," (*Sequoia gigantea*). Meanwhile we have been off our saddles scores of times to measure the vegetable giants by which we were surrounded. The following measurements of such trees as we selected, were all made five feet above the ground, and may be relied on for accuracy: *Pinus Lambertiana*, 18, 20, 21½, 24, and 25 feet; *P. ponderosa*, 15½, 17, and 20 feet; *Abies Douglasii*, 15 and 18½ feet; *Libocedrus decurrens*, 15½, 19, and 22 feet, &c. These are not isolated specimens, for hundreds of others equally as large are all around us.

The small group of *Washingtonias*, or *Wellingtonias*, or more properly still, *Sequoia*, known as the "Tuolumne Grove, consists of seven trees. The most curious are the "Siamese Twins," two immense shafts, joined at the base, but above form two distinct and handsome specimens. We

measure around them at the ground 114 feet. The bark was 25 inches thick, and the height, we were informed, 215 feet. The other members of this group were somewhat smaller. As we had many miles to travel before reaching the valley, we departed, with a lingering glance at these great old monarchs of the forest, and soon neared the region of *Abies grandis*, and *A. amabilis*. We now rode through dense forests formed of immense trees of these darkened sombre looking Firs, with their rich, glossy foliage adding an air of grandeur to the scene.

I cannot give an adequate description of the great beauty of these mountain heights, but by remarking that we rode on in a perfect ecstasy of delight, beneath thousands of trees, any one of which would prove a countless treasure to an arboriculturist at home. In open spots cleared by storms and fires, the young groves are springing up, and show to advantage the remarkable beauty of the species. Trees from 10 to 20 feet, branch regularly from the ground, and are as uniform in growth as it is possible to be. Each individual forms a perfect green cone,—not a leaf injured,—not a twig wanting to perfect their regularity of outlines, but all perfection itself. The old veterans rear their huge stems 150 and 200 feet high, with often a naked body of 100 feet, and then the rich green mass of foliage at the top, defying the storms of many years, still charms us as in younger trees. At Crane's Flat, where we stop to rest, and enjoy with keenest relish the pure sweet mountain water, we measure a few of the specimens: 13½, 16, and 18 feet, respectively, in circumference.

On the high cold elevations, where soil is damp, we now find groups of *Pinus contorta*, a true Alpine species, and one of the most beautiful medium sized trees we have seen. In general habit, it is not unlike *P. inops*, to which it is also botanically allied; but for regularity of form, compactness of growth, color of foliage, and in fact every other good quality requisite in an ornamental tree, we do not know of its superior among the Pines.

As the sun is setting behind the distant mountain tops, we arrive at Tamerack Flat, 8,200 feet elevation,—a broad plateau of rocks, from which the glory of the Yo-Semite breaks upon our view thousands of feet below. But our girths have to be tightened now, and we prepare for the perilous and difficult descent. As we cautiously go down the almost perpendicular path, the air has changed, and drops of rain come pattering down,

which soon after changing to hail, renders our journey extremely unpleasant. Before arriving in the valley, the storm breaks on our unprotected party with all the fury of a Sierra squall; and the slippery path is scarcely seen for the great sharp hailstones cutting face and hands with a pertinacity rarely excelled. Still, a fine plant of the *Torreya Californica* (*California Nutmeg*), is too rare a prize to pass heedlessly by, and quickly a piece is transferred to my herbarium, and we go on down, down, down,—to us an almost endless journey,—until we are cantering our weary steeds along the level valley, through well-nigh an Egyptian darkness. Tired, sore, and completely soaked through, we arrive at our destination, Hutching's Hospice, where we are soon laughing at our mishaps, before the genial blaze of a hot fire in the ample old-fashioned chimney corner. And here I leave you, dear old *Monthly*, to dream of the rocks, and trees, and waterfalls, that make this magnificent valley the wonder and admiration of Californian scenery.

Very sincerely, &c.,

JOSIAH HOOPES.

CALIFORNIA FRUITS COMPARED WITH EASTERN.

BY MR. T. G. YEOMANS, WALWORTH, N. Y.

In *Moore's Rural New Yorker* of December 18th, is a lengthy article of nearly one and a half pages, introduced in glowing style, to give an account of some of the marvelous fruits of California, and having heard so much of the success of growing fruits there of enormous size, we might well expect the description of these exhibition fruits to follow such an eloquent introduction would be quite wonderful.

But an examination of the list of fruits described shows very little to sustain former representations of their equal size, or to render proper to such a flourishing style of introduction as the article in the *Rural*.

The writer says "When people see specimens of pears, apricots, plums, apples, &c, the equals of which the world has never looked upon—when they see all this, the wondering multitude are led to inquire: Whence come these marvelous productions of nature? these prodigies of the kingdom of Pomona? Can it be other than from the famed gardens of the Hesperides?"

These were not presented as new varieties, but to show the difference between the same varieties grown in the East and in California. "We give

the size and weight, so that the difference may be made more readily apparent."

The following description of a large number of varieties, and embracing those more generally grown in Western New York, and well known at the East generally, will serve as an illustration, and show comparatively the difference between the fruits of California and New York.

And it should be borne in mind that these are specimen fruits, exhibited at the Industrial Fair held at San Francisco in September and October last.

For our first comparison we will take Tompkins Co. King, described as being 14 inches in circumference longitudinally and weighing 19 ounces. The writer measured one the past fall measuring the same, but not weighed, and put up three or four barrels that counted 172 to 185 to the barrel, and some more on hand not put up in the barrels that weigh 16 ounces.

Belleflower 10½ ounces, Esopus Spitzenburg 12 ounces. Fall Pippin 16 ounces. R. I. Greening 15 ounces. Baldwin 16 ounces. N. Spy 16. Seekno further 10. Swaar 10 ounces. I think there are none of them larger than the best specimen of these varieties often found in Western New York, and Roxbury Russet at 11 ounces is smaller than best samples grown here the past season.

In the comparison of Pears those from California do not compare as favorably as the apples. For example: White Doyenne 5 ounces, Sheldon 8, Easter Beurre 13, are certainly not extravagantly large, nor better than specimens often seen; neither is Beurre Diel at 15 ounces.

Clapp's Favorite at 13 ounces I think would not at all surprise Mr. Clapp at Boston.

The Duchess d'Angouleme at 11 ounces, Beurre d'Anjou 8½, and Beurre Clairgeau 11 ounces, are decidedly small for specimen fruits at exhibitions: reliable statements show Duchesse at Boston 24 ounces or over, and at Walworth we have had them 22 ounces, and filled a barrel at a time with specimens weighing over a pound each, and by reference to *Gardener's Monthly*, December, 1865, it will be seen that I sent to the editor, Mr. Meehan, Duchesse 19½ ounces, Beurre Clairgeau 15 ounces, and Beurre de Anjou 18 ounces. Now, one of each of these California specimens (3) weigh together 30½ ounces, while three of same varieties as sent to G. M. as above, weighed 52½ ounces; or making an average difference on these three popular va-

ieties in favor of Walworth pears of over 65 per cent.

Most of the other varieties of pears and apples described in the *Rural New Yorker* are smaller fruits, and grown comparatively little in Western New York.

The Gloria Mundi apple 26 ounces, and the Vicar Winkfield pear 24 ounces, are both large, but conceded to be not very good.

Therefore if these specimen exhibition fruits, are the best California can produce, Eastern fruit-growers need not fear for their laurels, and Doctor Houghton need not except California when he challenges competition in growing fine pears.

PEAR CULTURE ONCE MORE.

BY DR. J. S. HOUGHTON, PHILADELPHIA.

Mr. Earle, of South Pass, Illinois, discusses the pear question in such a genial style that I cannot refrain from answering some of his "questions." As the ghost in Hamlet says, "brief let me be."

"Is it essential that the bulk of a crop of pears for the general market should be of extra size?"

I answer, not at all: but it is essential that the fruit offered for sale should be nearly perfect samples of each variety, of full size, and fair skin, free from fungus and marks of insects, worms, &c. As a general thing, in open market, large, handsome, highly colored (yellow and red), well ripened pears, free from marks and bruises, will sell better than small, dark-skinned, somewhat spotted fruit, even when the latter is of the very best quality, and the first named is indifferent or poor. In common markets no small sized fruit, except the Seckel, will bring the highest price. But in the first class fruit stores, which are visited by persons of intelligence, (and especially by amateur fruit growers,) small pears, of high quality, like Josephine de Malines, sell readily enough, at good prices, but even then they do not pay the grower,—why?—because they do not measure-up well. They are not the "fill-baskets."

It is a great mistake to suppose that only the "Continental Hotel," in Philadelphia, and the "Fifth Avenue," in New York, require fruit of the largest size and finest quality. Why, even the poor Italian street peddlers, who sell apples and pears on the head of a barrel, will "turn up their noses," with a sign of indifference, at the second or third quality of pears, at any price, in the months of September and October, in all the

large cities, while they will eagerly buy first rate fruit,—large, beautiful and perfect,—at eight dollars per bushel. Why? Because the market, in those months, is glutted with medium and common fruit, and the fruit stands are covered with even fine fruit in an injured or partially rotted state, which can be (and must be) sold very low, immediately. Now it may be a little exaggeration to say, as I intended, in my first article, that "one half the crop, on old standard trees, is scarcely marketable at one dollar per bushel," but it would be perfectly true to say that the larger portion, of common small pears, on common orchard trees, are not marketable, in our large cities, in September or October, at one dollar per basket—a basket being about half a bushel. The truth is, the dealers don't want common or inferior pears when the thermometer is at 60° to 70°—at any price, because they are unsaleable, and they cannot fail to rot in two weeks, or less.

The Italian fruit dealer, says: "I want the fine pears. I want the best. I pay your price. I give you the cash moneys. I got plenty small pears."

"Our object should be," says Mr. Earle, "to grow pears in such quantity and quality as to supply families by the bushel or barrel, just as apples are sold in our markets."

My personal experience in the pear market, leads me to question whether this will soon be accomplished to the satisfaction of all parties.

In the first place, families rarely, if ever, buy pears in quantity at any price. Why? Because they are looked upon as a treacherous commodity: thus—if hard, or not ripened, or not ready for use, they do not know how to keep or ripen them; if ripened up, soft, and ready for use, a peck, even, is too much for the immediate wants of any ordinary family.

Secondly, if "sold just as apples are," pears would pay the growers not more than \$2 per barrel, (after deducting cost of barrel, freight and commissions,) which would be worse for Mr. Earle than my original dollar per bushel.

No, Sir. What we want, to make pear-growing pay, is a quality of fruit which will bring from \$6.50 to \$8.00 per bushel, for retail dealers—and the balance of the crop (if I were not a temperance man) I would make into Perry. It is an injury to a good market to flood it with medium and poor pears, at a low figure. The dealers dislike it, and the public never thank you for it. Everybody wants fine pears—the very

finest that can be grown. Pears are like "Jeremiah's figs—the good are very good, the bad not fit to give the pigs."

Now, Mr. Earle, gentlemen, "ADDI," and the rest of the critics, you don't rightly understand me. What I mean to say is this:

1. Pear culture is difficult and precarious.
2. All climates are treacherous and doubtful.
3. Insects and fungus are suspicious, to say the least.
4. White man is "unsartin," and so are pears (about keeping and ripening) after you get 'em.
5. All markets are "queer," and your market will probably be glutted, just when you desire to sell, unless you have fine specimen fruit, in the finest possible condition.

6. To grow the finest specimen fruit, with certainty, every year, will require more care and skill than has hitherto been given to it, in America.

7. "Barrel" pears won't do. It must be specimen fruit, each specimen in tissue paper, to command the first price.

Mr. Earle asks: Is not "all the writing which encourages extravagant culture,—which can only produce a few fancy pears, &c.—unhealthy in its influence?" I answer not at all, for the reason, that if, by the best culture we can raise magnificent fruit, which the public are willing to pay for, you are sure to have enough good, common and inferior fruit for those who choose to buy it. Families can then buy "barrels" of pears at a low figure.

The boarding school miss, who attempted to paint a vessel under full sail, in a brisk breeze, said that what troubled her most, in her artistic work, was *wind*, and she couldn't manage the *water* to her satisfaction.

Now in pear culture, it is wind, water, frost, dry air, &c., (the elements) that trouble me most. But I am not alone, in this difficulty. In the *London Cottage Gardener*, for November last, I find the following remarks from T. C. BREHAUT, the eminent fruit-grower of the Island of Guernsey, (off the coast of France) where the climate has been supposed to be perfection. He says:

"It is too often supposed that the fruit-growing powers of the Channel Islands are so great that little skill is needed to produce almost anything. This has mainly arisen from the reputation of our noble Chaumontel Pears, which happen exactly to suit our cloudy summers and

equable night temperature; but for most other fruits the south of England is our equal, and in almost every garden production France and Belgium are naturally superior. Apricots here will rarely succeed on the open wall; open air grapes are inferior to those of England. The prevalence of strong sea breezes laden with salt, is opposed to success.

"This year we had a damp and gloomy spring, succeeded by a sunless summer, and this by an unfavorable autumn remarkable for the most furious hurricane ever felt here. Hail showers and low temperatures closed in the record of this trying fruit season with a grim appropriateness.

"The hurricane of the 12th of September last, which exceeded a hundred miles an hour in speed, destroyed every leaf which was exposed to it, and shook down most of the crops. Last year, also, a gale occurred in the middle of August. Even in the case of orchard houses, the spring was disastrous, gloomy, and cold, while the summer was nearly sunless; in the month of October we had smart hail showers, and have now violent wind. All these matters are troublesome in the extreme."

I may add, that Rochester had a bad spring, in 1869, and Boston had a gale in September which "shook down" the pears sadly.

What we need most in the culture of fine dessert pears, is protection against spring frosts, and cold winds and rains, at the blossoming period. That this can be done with profit, I begin to believe.

THE ROUND TUBERED DIOSCOREA.

BY PRINCE & CO., FLUSHING, N. Y.

We have received so many letters requesting information as to the late Dr. Prince's collection of Dioscoreas, that we propose, with your permission, to answer them all collectively through the medium of your valuable *Monthly*.

For a number of years Dr. Prince was engaged in endeavoring to obtain shorter and rounder varieties of the Dioscorea than that which we had (*batatas*). The very shape which made the long variety indispensably valuable in China, where land is scarce and labor abundant, became an objection in America, where on the contrary, land is abundant and labor scarce.

About two years since, Dr. Prince succeeded in obtaining a few little tubers of shorter varieties, at an expense which seems almost fabulous. Those that grew proved to be *Rotunda*, a round

variety, quite similar in appearance to our ordinary potato. Last spring he received a large collection of comparatively short varieties, and he congratulated himself greatly on the prospect of soon introducing these interesting and valuable esculents to American culture.

His sudden death, however, put an end to his efforts in the matter; and by a very unfortunate accident, the rare tubers and roots which he had placed in a closed box in his own room, were not observed and taken out until the beginning of summer. Probably from their long stay in a heated room, the yams when discovered were dry, hard and apparently dead. Determined, however, to leave no effort untried to save these varieties which had been obtained with such great trouble and expense, we had the roots divided and planted, notwithstanding their dried-up appearance.

They were of various kinds, which from the shape and general appearance of the yams, we called "Cocoa-nut shaped," "Banana shaped," and "Sweet potato shaped," besides the round variety before mentioned.

Shortly after August 1st, when we had given up all hopes of life, two vines showed themselves from the "Banana shaped" yam. The growth of these vines was very different from that of the ordinary *Dioscorea batatas*. The vine instead of being round, was quadrangular, and spiral in its growth, while the foliage was lighter in color than that of the regular *batatas*.

We need not say with what interest these little vines were watched from day to day; but although reaching perhaps three feet in length, they made no tubers; and the result on digging at the end of the season, showed that the little dried up bits of yam had exhausted themselves by their ambitious efforts to produce vines; so that it is doubtful whether we have not lost that as well as the cocoa-nut, and sweet potato shaped varieties.

It is sincerely to be hoped that some enterprising American will hasten to introduce this variety so unfortunately lost. Its shape, size and general appearance are just what is to be desired for an esculent root.

A few of the *Rotunda* (probably the most valuable variety) fortunately grew; although, of course, commencing their growth very late. We enclose a photograph of some of them to show the general shape. We have so few that we do not propose to part with any at present, but reserve them for experiment another year.

We may add that we have in our possession a limited number of the pamphlet issued by Dr. Prince descriptive of the varieties of these yams, and explaining their special value, which we will, with pleasure, forward to those interested, so long as they last, without charge.

THE GREENHOUSES OF MRS. GEO. W. CARPENTER, GERMANTOWN.

BY J. M., PHILADELPHIA.

On a visit to the above place a few days previous to Christmas, I saw so much to admire that I am about to give you some notes taken at the time. There are several plant houses on the place, but one only is devoted to the growth of winter flowers, and of that one I intend to write. It is a mistake too often made to fill plant houses with rare plants which bloom seldom and are desirable only for their rarity. Here it is not so. The plants are all selected for winter flowering, and are carefully grown for months beforehand for that purpose. The collection consisted chiefly of *Gesnerias*, *Choroze-mas*, *Heliotrope*, *Mignonette*, *Chinese Prim-roses*, *Lopezia*, *Stevias*, *Ageratums*, *Centrade-nias*, *Abutilons*, *Cyrtantheras*, *Habrothamnus*, *Salvias*, *Daphne*, *Camellias*, *Aphelandra*, *Belle-perone*, *Lantanas*, *Syphocampyles*, *Cestrum*, *Veronica*, *Acacia*, *Begonia*, *Euphorbia*, *Olea*, and many others. Some 8-inch pots of *Migno-nette* had over 75 heads of flowers; their sweetness, with that of the *Daphne*, *Olea* and *Helio-trope*, pervaded the whole house. One large *Heliotrope* from last spring's cutting had over 200 heads of bloom then open on it.

The house is span roof, about 50 feet long, and kept only moderately warm in winter. The gardener, Mr. David Joyce, I found busily engaged in making floral designs for Christmas decorations, and had flowers by the bushel to cut for the purpose. The *Abutilon album* I noticed as being a remarkably showy plant in winter; its flowers are sulphur yellow rather than white, and flowering very freely makes it very desirable for winter. The *Camellias* for which this place is famous were not yet well in bloom. Some double White, and Lady Hume's Blush were the forwardest—the latter is one of the best for bouquets, owing to the small size of its flowers comparatively, and its beautiful creamy color. I was much struck with the intense green of the *Camellia* leaves on all the plants, and found they had been watered with lime water, which was

thought to be the cause. This destroys the worms and insects in the soil, but whether it does any other good or not I cannot say, but I certainly never saw a more deep green, healthy color before.

In response to an objection of mine that there were not colored flowers enough, I was told that it was partly owing to the owner's taste, who preferred delicate, sweet-scented flowers to those of showy colors.

ON SPECIFIC HEAT OF PLANTS.

BY DR. L. FRITSCHKE, EVANSTON, INDIANA

An article in the November number, by Mr. Walter Elder, called back to my memory observations which I made when a school boy, roving through the forests and swamps on the coast of the Baltic and Northern seas. Many a time when I was out hunting in the cold of the winter in those regions, where the snow covered the pine and beech forests to a considerable depth, my observation was drawn to the trunks of the trees, which, without hardly any exceptions, had no snow around them to about the width of one to two inches from the surface of the snow down to the soil; the snow being sometimes from one to two feet in depth. It looked like a hollow cylinder around the trunks of the trees. The natural explanation that I could give myself about this phenomenon, was that the internal or inherent heat of the trees must have produced it.

In later years, when I learned in the Medical College about the specific heat of men and animals, in my study of human physiology, the phenomenon from the boyhood was called back to my memory, and I always thought that such a thing like the specific heat of a living animal body must likewise exist in the vegetable kingdom. Observations in later years have proved to me without doubt that the motion of the sap in plants never is at rest, though sometimes so slow that it cannot be observed with the naked eye. After so many years passing by, is it not pleasing that the ideas of a man, those of Mr. Elder, call back to my memory all the different thoughts I had about this subject. Though Botany has not been my field of study, and time being so precious to me in my professional occupation, I wanted to call the attention of your readers to this subject for further observation. Water and the sap of plants is of course a very different thing, and we know that the sap

is mostly composed of water; it is the medium in which the nutritive parts or salts, etc., are dissolved. But in the winter time, when the cells and vessels of the plants become so contracted as to make the endosmosis (or the circulation, if you may call it by this name) hardly perceptible, the suction force having ceased by the fall of the leaves, cessation of evaporation, it follows that the sap must contain by far less water than in the time of their greatest vitality. The quantity of water in the sap may decrease to such an extent that freezing or crystallization could not take place. And may not the motion of the sap, which even in winter time is not at rest, produce a certain degree of heat that may also prevent the freezing of the sap?

How do plants freeze? Undoubtedly by the solidification or crystallization of the water in the sap; when the cells and vessels are filled with sap, and in the process of the formation of ice, their taking up a larger volume than the water had before freezing, consequently the cells and sap vessels of the plants must burst by this expansion; because it is a well known physical fact that the water takes a larger volume in the formation of ice. Do we not see every year that cherry and some other trees freeze easier here than in the coldest parts of Europe? The very mild days here in winter sometimes fill the cells to their greatest extent, and then a following frost increases the volume of the contents of the cells suddenly by the formation of ice—death is the natural consequence. Some plants of course can support a very great expansion of their cells by the very elasticity of their fibre. Thanking Mr. Elder for putting these ideas in motion, I must conclude with this statement: There is no life without motion, and motion is the eternal source of light and heat.

Perhaps other friends of horticulture may have made better observations, and will give us more light on this subject, or may these lines produce a more thorough observation of the matter.

NOTES ON FRUITS IN WISCONSIN.

J. W. C., GREEN LAKE CO., WIS.

In central Wisconsin there is a section of farming country that for general grain crops is not excelled by any equal area in the far West; this conclusion being arrived at after travel, observation and comparison. This section embraces all the county of Green Lake, most of Dodge

county, and part of Columbia Fond du Lac and Winnebago counties, the extent of it being, in round numbers, about thirty square miles, or 900 sections of land. The soil is about in equal parts of rich dark prairie and strong loam, or sandy loam, opening on thinly timbered ground. The district generally is rolling, with good natural drainage, and pretty well watered, in all ordinary seasons, most of it even in long drouths; and settlers,—it is all settled, and farms are worth from \$30 to \$100 per acre—from different States, say it is not excelled as a wheat producing country by any in the North-west. The basis of this success in wheat is probably *Lime* and *good natural drainage*.

It is also true that lime and good drainage are equally favorable to fruit generally; prominently to apples. It is therefore not a matter of surprise that while in the latitudes of Illinois, Missouri and Southern Iowa, apples have been very defective, on land saturated with moisture, in the season of '69, the apple crop has been excellent here. But as it may be news to men further South, I will state a few facts as to apples in 44° North latitude.

The Northern Spy does well in several places in Green Lake county. I have several barrels of Newton Pippins in my cellar, though this apple is scarce here. It is only slightly spotted; not enough to damage its keeping qualities. The American Golden Russet is largely grown, and an annual bearer in this district. Sops of Wine, red Astrachan and Oldenburg, are very successful. By-the-bye, why call it *Duchess Oldenburg*? Is not the name Oldenburg long enough and distinct enough? Rambo does well in some localities.

Fall Orange, Autumn Strawberry and Fameuse, do well, both as to tree and fruit, and Fall Pippin does well after the tree attains age, but is tender when the trees are small. I find the Fameuse variable in size according to soil. It needs a well drained soil to give size and quality in the fruit. With the million this is the most popular apple of its season, though inferior in quality to the Fall Strawberry, particularly as a table fruit.

The Yellow Bellflower is the most popular apple in Central Wisconsin for cooking; and the million eat it with relish. If we could get as good a cooking apple, with as fine and firm grown and texture, as the Swarr and Golden Russet have, it would never be superseded while productive.

The Apple growers of Illinois and Iowa seem to be at sixes and sevens about the Yellow Bellflower being profitable. A few of them admit that it is profitable on "gravelly knolls," &c. This qualification, "*gravelly knolls*," tells the tale and gives the clue. It will not bear early, nor produce good fruit except on well drained soils. With me, on a sandy loam, it bears annually. Some of the trees give a full crop, and a light one alternately,—and singularly, for I have seen no other tree do this so conspicuously,—one-half or one-third of a tree will be laden down with a heavy crop, while the other part bears only a few scattering apples. On the whole, the Yellow Bellflower,—soft though it be,—is generally productive, and always marketable at a fair price here.

The Ben Davis is now having a run. One nurseryman near me will use 10,000 scions of it this winter. The Minkler is also being largely propagated; while Perry Russet, though a shy bearer, is gaining in popularity as the trees increase in age and value.

A nurseryman, formerly a neighbor of A. J. Downing, on the Hudson, and for years in the business in McHenry Co., Ill., but now doing a large business at Ripon, in the district I have outlined, tells me that the latter is far superior as a fruit growing country to North Illinois, etc. I think two facts in favor of this view are, our greater elevation and very much superior natural drainage. Nine-tenths of these nine hundred sections are both naturally well-drained, and either top soil or subsoil,—and frequently both,—is more or less strongly impregnated with lime in a condition that favors the growth of trees, and the production of apples, as well as of wheat and grass; and should you have time, I am sure you would be greatly gratified by what you would see, if you should take a trip to the Ripon Agricultural Show next September.

I may add, that the Bartlett Pear, and Diana Grape, are doing well in this vicinity, on the borders of the Fox River north, while Delaware is a general favorite.

THE RAPHANUS CAUNDATUS.

BY MC K., JEFFERSONVILLE, IND.

In the December number of the *Gardener's Monthly* I notice the prediction of the *Nova Scotia Journal of Agriculture* "that the time will come when the "rat-tailed radish will be grown in every garden." My experience with

this curious vegetable, satisfies me that, owing to its strong propensity to hybridize with other varieties, it cannot maintain for more than one season its distinctive character when cultivated in the same garden with the common radish. The pods of the hybrid are short, stiff, tough, and utterly unfit for eating. To succeed with the *Raphanus caudatus* it will, I think, be necessary to procure imported seeds every year, or to abandon entirely the cultivation of the old and more valuable variety, the *Raphanus sativus*.

CULTIVATION OF ALPINE STRAWBERRIES.

BY MR. CHAS. CRUCKNELL, HARRISBURG, PA.

I have been much amused at the discussion going on in the papers as to the identity of the Mexican Ever-bearing Strawberry. I have not seen the new candidate for public favor, and cannot speak as to its merits; but the fact of some of the most noted cultivators being divided in opinion as to its real character, leaves the matter open to conjecture. Such being the case, the following account, drawn from my own personal recollections and experience, may have some bearing on the subject.

Every person who has tried the experiment of growing Strawberries in hills, where weeds and runners have been kept down, and the ground well mulched, knows the vast difference in flavor, and in the size of the berries as compared to those grown in beds, where weeds and runners alike are allowed to run riot.

For several years I grew exclusively the Alpine varieties for table use. On account of their diminutive size, and the time spent in gathering them, I had repeatedly introduced new kinds, with the view of discontinuing the cultivation of the Alpines, but the proprietor, who was a Frenchman, declared they were all too acid; neither had they the rich aromatic flavor of the Alpines.

The system pursued then of growing them in beds, and digging between the rows every spring and fall, tended as much as anything to dwarf them to liliputian proportions indeed, and each succeeding year they grew less, with a fair prospect of the fruit becoming as large as—peas.

To me they were an eye sore. The beds had twenty years previous been devoted to Strawberry culture, and like the law of the Medes and Persians, it changed not. By dint of considerable urging, consent was at last given to make a

new bed, on new ground. In July the first runners were laid in pots, all others being kept pinched off, and when they were sufficiently rooted they were planted in *double rows*. The garden line was stretched the length of the row, and on each side, at the distance of six inches from the line, the runners were planted one foot apart in each row, and alternately, so that the plants on one side of the line were not opposite those on the other side.

The distance between each double row was two feet. The ground heavily mulched, and all runners cut off as soon as they appeared. The beds were made in the open ground, clear of all trees and vines, and where they could have the full benefit of an American summer's sun. The bed did well, and bore considerable fruit the following spring, the berries being almost as large as the best Wilson's I have ever seen. This was quite a change from what we had been used to. No person looking at the two beds would suppose for a moment they were the same variety of Strawberry. The second year we picked more *fine fruit* from this bed than I have done before or since from any other variety on the same quantity of ground.

SUCCESSFUL FRUIT GROWING.

BY MR. T. T. SOUTHWICK, DANSVILLE, N. Y.

I remember reading an article some months since, written by some distinguished writer, claiming fruit culture in the United States to be a failure as compared to Europe.

Now, I have no disposition to quarrel with the professional "croaker." He stands in about the same relation to Pomology as the regular critic does to art and literature. There is probably no pursuit that embraces so large a proportion of enthusiastic followers as that of Pomology—and an occasional array of the unpleasant things—a careful record of failures and disappointments, can serve but a good end. Gratitude should be felt for the "croaker" for taking upon himself such unpleasant duties,—for while the great body of Pomologists are basking in the glow of their genial enthusiasm, he is shivering in the chill of his own gloom.

But I ramble. I merely intend to present an item or two touching the apple crop of some of the counties of this State.

Orleans sent to market this autumn two hundred and eighteen thousand and nine hundred (218,900) barrels of apples, bringing upwards of

six hundred and fifty-six thousand dollars (\$656,000).

Niagara county claims to have marketed this fall five hundred thousand (500,000) barrels, bringing one million five hundred thousand dollars (\$1,500,000). The figures do not include a large amount held for home use, spring sales, and those sold for cider.

I have not yet received returns from Monroe, Ontario and Wayne counties, but should judge it safe to place them at half a million. This would make for five adjoining counties a cash income of upwards two and a half million of dollars for apples.

This season's crop is by no means an unusual

crop, and the prices paid are not as high as some other years.

The first apple tree planted in Orleans county is still standing. The crop for 1866 was 280,000 barrels.

Will our friend referred to state whether any part of Europe produces, for the same extent of ground, more bushels of select choice fruit as shown above as follows:

Niagara county, 500,000 barrels of	
Apples at \$3	\$1,500 000
Orleans county, 218,000 do	656 000
Monroe, Ontario and Wayne, 200,000, 600 000	
Total for five counties,	2,756 000

EDITORIAL.

HORTICULTURE AT MILWAUKEE.

In the course of our run West this winter, we spent a few hours at Milwaukee, and were surprised to find it so much more of a pleasant and prosperous place, horticulturally, than we had anticipated. True, our magazine has many readers there, and much might be expected on that account; but then Milwaukee is but, as it were, a thing of yesterday. We found a magnificent city of a hundred thousand souls—one-tenth the size of Philadelphia in two centuries. It is our good fortune to find kind friends at every town, and here our good and hospitable host chanced to be one of the early settlers, who only thirty years ago came here and found but twenty white families ahead of him. At that time it was the headquarters of some Indian tribes, and of Juneau, the great trader, whose house, and whose descendants still are here. Like William Penn, Juneau was much beloved by the aborigines with whom he had intercourse. He married one of them, and honestly attended to their best interests, even to the sacrifice of his own. He and his descendants might have been amongst the wealthiest if his own personal ends had alone been sought.

Milwaukee is peculiarly divided into three sections by reason of the river, and singularly enough, each section represents a different civilization. One section is thoroughly Irish, another German, and the third American. Amongst the German class, market gardening extensively prevails. They are the chief feeders of this large population. They

have a well organized Gardener's Association amongst them, which, however, is chiefly with a view to the business affairs of the members, than as a society for mutual improvement in the higher branches of gardening, as horticultural societies usually are. They own a valuable tract of land in the heart of the city, which is known as the German Market, and is a very popular spot with those citizens who wish to buy in the cheapest and best place. This market is quite a curiosity, reminding one very much of the "fairs" annually held for the purpose of trade and fun, or hiring of the country laborers of Europe. Each stall is a frame box averaging about eight by twelve feet—generally with alley-ways between each, and very narrow streets for foot passengers running between them. These booths are not confined to fruits, vegetables or provisions, but supply everything from a darning needle to a rocking horse. It is sad to say, that as of stage coaches and many other good things of the past, this relic of the good old time is also soon to pass away. The Association has decided to build one large, handsome market house on the lot, after the fashion of some of the modern palatial affairs in Philadelphia,—and in this, at any rate, these German gardeners show themselves fully up to the modern idea of progressive times.

The nursery business, strangely enough, seems to have no hold at Milwaukee, and the nearest establishment is that of Stickney & Baumbach, who are some twenty miles off, at Wauwatosa,

and we found that much was done by the patrons of gardening here in direct importation of things from Europe. If the nursery business was behind, such, however, was not so with the florists. The German gardeners deal largely in flowers; and there are two firms who, in seed and cut flowers, do business equal to many of our large Eastern houses. Messrs. Whitnel & Ellis have nine houses, chiefly devoted to cut flowers, and Mr. Dunlap has also a very fine establishment for the same purpose, and he pursues the business not only as a means of living, but with a keen zest, such as only a real lover of flowers for their own sake only, ever shows. His collection contains many rare things, which are rarely ever found outside of the house of the wealthy amateur.

But one of the richest treats was afforded by the private residence and grounds of Alexander Mitchell, Esq. The property is less than an acre, probably, but so divided by well kept evergreen hedges as to appear very much larger. The house—a mixture of ancient Ionic, with the modern Italian style, is beautifully proportioned and chastely adorned, and is a highly admired specimen of architecture. Against the boundary walls of the lot are the greenhouses for fruit and flowers, so that one can walk all around the property under glass. There are six distinct sections of houses, each about 100 feet, besides many smaller concerns. These are heated by hot water, circulated by means of Myers' Philadelphia boilers. The house immediately in connection with the dwelling, is a handsome curvilinear structure, having a table in front over the pipes; but the main portion has the plants—very rare species—growing in the open ground. The back wall is covered chiefly by Abutilons, which had hundreds of blossoms, and we never saw this plant used with better effect. One house is devoted to cut flowers, another to Roses, another to Orchidæa, and plants of similar habits. The Orchidæa list exceeded fifty of the rarest kinds,—and on the place there were over 9,000 pot plants altogether. In the Orchidæa house one of the most striking plants is a Colocasia, marked odorata, said to have been received direct from Cuba. The common Caladium, or Colocasia esculenta, is well known, its large, shield-like leaves being now a very common summer ornament of our gardens,—but these had leaves four to six feet long, and only for the width of the leaves, might be taken for a gigantic Banana. It seems to

grow up with a solid stem, also, not exactly like a Banana, but rather like a tree fern. The back wall of the Orchidæa house had been a pretty object,—a layer of moss had been put up against the brick wall, and then a strip of wood about half an inch fastened against the moss to keep it in place—more moss, and then another strip, and so on until all the surface was one sheet of greenness. The Ficus stipulata and other creeping plants.

So far here is no novelty, although such neat little fancies are not often done; but it has been not infrequently practiced in some of our best houses. The novelty here was to us in the employment of the variegated leaved Begonias, to grow out through the moss. No one can conceive the beautiful effect produced by these plants, as the position was so very favorable to looking at the undersides of the leaves, wherein lies the rarely appreciated beauty of this lovely tribe.

But to return to more practical matters, perhaps one of the most interesting departments was the Mushroom division of the cut flower house. Usually the under stage of a greenhouse, is an untidy, dirty mass of old pots, old flower stalks, and other rubbish. Here a walk behind led to a tidy place well enough arranged to be part of the household of a first class house-keeper. Along the shallow side were set up the Mushroom boxes like feed chests in a farmer's barn,—or the sugar cases in a grocery store. The moving and sloping covers prevented any drip from the plants entering the Mushroom beds, and enabled the gardener to keep the moisture, so necessary to be regular, completely under control. These boxes are only about fourteen inches wide, and are divided into sections of eighteen feet each. Each bed of Mushrooms continues productive about six weeks, so that a new section is made up at those regular periods, and thus a succession of the esculents is kept up all the season. About one hundred large, fat fellows are the product of each section.

The heat maintained here with such regularity is 65° or 70°, and is communicated from small gas pipes running through the boxes, and the bottom of the bed is elevated a little from the bottom of the boxes, so as to allow a current of air to get under, which all helps to keep the soil and the air at the same temperature, which, as we showed in our recent paper on Mushrooms, is so essential to success. Arrangements are also made to catch in a small trough any moisture which may condense on the surface

of the lid, and which, running down on the beds, would do injury by making them too wet.

The material for the bed is pretty much as we described also in our recent article. Droppings from oat-fed horses, not allowed to ferment too rapidly, pressed firmly into the boxes—spawn from Mushroom-bricks, and then an inch of soil beaten firmly.

Mr. Jos. Pollard is gardener here, and though we made his acquaintance here for the first time, feel that he is one of the gardeners American Horticulture may be proud to own.

Milwaukee, though feeling itself somewhat the rival of Chicago, and apparently seizing on everything which may aid it to regain a prominence Chicago has achieved over it in many respects, is yet strangely slow to take up with some good chances which lie at its door.

Industry and natural advantages are not all that build up a place. Intelligence—science and art—must receive due encouragement. Where these are fostered, fame follows and wealth ensues. It is very questionable whether Boston or Philadelphia would ever have achieved their present eminence, but for their great reputation as seats of learning. These highly educated men are not often themselves wealthy—too often the pursuit of their fancy leaves them poor,—but they are the great source of wealth to others, who learn how to put to a practical use the discoveries they make. Chicago understands this, and is fast becoming the literary and scientific centre of the West. Milwaukee, with 100,000 inhabitants, has little of this spirit. It has a small commencement in a very pretty public library room, and about 10,000 volumes; but although it is continually growing in public estimation—slowly, perhaps—yet it is not near as much prized as one would suppose. The city has, perhaps, a better chance for this reputation than Chicago ever had. It is in a rich region, and has some eminent men of science, among whom is Dr. I. A. Lapham, for whom the genus of North American plants, *Laphamia*, has been named, and whose fame as mineralogist and geologist is no less than his Botanical reputation. His collections are very extensive. The Herbarium alone embraces over 8000 species. We heard that he offered to present the whole of his valuable collection to the city, if the citizens would provide a suitable place for them, but the proposition does not seem to be valued. Chicago would "jump" at such a chance, and we were

much surprised that Milwaukee did not appreciate it.

Dropping in "on change," we were happy to meet among the money men one of our readers, Mr. David Fergusson, whose fame as an amateur Rose grower is not bounded by Milwaukee. He makes importations of most of the new kinds as they appear. A visit to his pretty town garden, though the grounds were covered with snow, disclosed great taste in arrangement, and must be a source of much enjoyment in the summer season. A small greenhouse was well filled with flowers, the rather rare *Libonia floribunda* being one of them.

HEMLOCK HEDGES.

(SEE PLATE.)

Wherever we go over the Union, we hear surprise expressed that the Hemlock makes a good evergreen hedge. Around Philadelphia, it is one of the most popular hedge plants, and we see a few about Boston and New York, but elsewhere it seems almost unknown for this purpose. We thought it might serve a useful purpose to give a colored plate taken from a hedge grown on the grounds of J. M. Aertsen, of Germantown, which has been planted fifteen years, ten of which it has been as highly admired as it is now.

Some think that as the hemlock is a large forest timber tree, it cannot be kept down as a hedge plant, but summer pruning will keep the strongest tree in a dwarf condition for a great number of years. The pruning has to be done just after the young growth pushes out, which about here is the end of May. It is very important the hedge should be cut with sloping sides, so that every part of the surface should have the full benefit of the light. No hedge with the upright sides or square top will keep thick at the bottom long.

Some objection has been made to the Hemlock that it is difficult to transplant. This is only when the roots are allowed to get dry, or are not beaten firmly in the soil at transplanting. The roots are slender and soon dry through, and they suffer from this neglect more easily than other trees; but it is so easy to guard against this, that no one but a confirmed lazy bones will have anything to say against it.

Our artist has represented a Norway Spruce as it is growing on the left of the picture, and in the front a bush of *Mahonia aquifolia*, with the rich rosy purple tint which it puts on in the winter season, and which, independently of its golden yellow blossoms in spring, gives it a great value in all sheltered grounds.

THE ILLINOIS HORTICULTURAL SOCIETY.

Receiving an invitation to address the meeting of this society at Ottawa last month, the editor of the *Gardener's Monthly* found himself there at the time indicated. It was very gratifying to find that the members were fully alive to the importance of these meetings. The large hall was filled every day with as intelligent a body of men as the Union can produce. The practical men and men of science—farmers and fruit-growers on the one hand, and on the other Geologists, Chemists, and Entomologists, mixed together not merely, as is often the case, to listen, but to throw in cheerfully for the common good what each had learned.

Mr. Shaw gave one of the most interesting Geological addresses it was ever our pleasure to listen to, showing how soil was originally made. Mr. Shimer, the Entomologist, interested those who studied abstract science by his views on the proper classification of some insects. Mr. Riley

also spoke on the insect question, giving some highly novel and interesting facts concerning curculio and other troublesome pests, which will enable fruit growers to know how best to defeat their operations.

Mr. Barry, of Rochester, discoursed on Pear culture, giving the practical experience of his very successful career as a pear grower, and satisfying all his hearers that what one man has done so easily, it ought to be very easy for another to do again. We are quite sure that no one who attended this Ottawa meeting but went away convinced, if their faith ever wavered, that there was nothing in the way of successful fruit growing in that part of the Union, which intelligence and industry may not overcome.

Dr. Hull added very much to the interest of the meeting, by his physiological observations.

The Editor will long remember the kind attention and civilities offered him by members of the Society and citizens of Ottawa; but the princely hospitality of Prof. Bassnett and family left no room for additional honors.

SCRAPS AND QUERIES.

DWARF PEARS—"Amateur," *Russellville, Ky.*, writes: "I am an amateur in fruit culture, and feel a lively interest in your most excellent magazine. I am in rather a quandary in regard to covering the Quince stock of my dwarf Pears. I notice quite a difference of opinion amongst some of the learned fruit culturists, and have decided to be governed by what you advise. Shall I cover the Quince stock up to and above the graft, or not? In trimming my pears I will have a large amount of wood, and I am thinking of ordering either Quince or Pear stocks. Which is the best? And will it do to graft early in the spring, as soon as stocks are received, or must I let them grow a year in the nursery row before grafting? An answer will greatly oblige."

[It is an excellent plan to cover the Quince stock in the Dwarf Pear,—but usually the Quince stock is 12 or 18 inches long, in which case the lowest part of the Quince will be so deep that it will gradually decay and communicate disease to the tree. This is why so many Dwarf Pears

fail. Cut away all but six or eight inches of this long stock. Sometimes there will not be many roots on the six or eight inches left. In such case cut away a large portion of the top of the Pear tree at the planting.]

Pear grafts grow stronger when the stocks have had one year's growth before grafting.]

EDITORIAL COURTESIES—Mr. Samuel B. Parsons recently wrote to the *Journal of Horticulture* that the ungentlemanly language allowed to appear in its paper did not help the cause of horticulture. In the last number of that magazine, a correspondent refers to Mr. Parsons' remarks, and commends them.

A remarkable coincidence is, that in the same number in which this endorsement of Mr. P.'s strictures appears, is an article in which the Editor of this journal is spoken of as the Editor of the "*Gardener's Oracle*,"—"one wiser than Sir T. A. Knight, Van Mons," and Mr. Hovey,—"One who now tells us in the language of

the old nursery rhyme, 'get out, you are all quacks.' "Such an oracle" who "tells Col. Wilder he is a mere charlatan,"—papers "marred by the interpolations of an ignorant editor," &c. What we *did* say, we believe, was very different from all this. It was that "The public idea of Pear culture for profit has been an utter failure,—that the knowledge and skill which has directed it to this day is merely empirical, having no foundation in science and no success in practice to recommend it,—and that we have the whole subject to begin anew, and the hard lesson to learn over again."

Col. Wilder, Mr. Barry, Mr. Quinn, Mr. Yeomans, Dr. Houghton, and perhaps a score of other gentlemen that we might name, have had, as we have frequently stated, *tolerable* success in the profitable line with their pears,—but we think as we said, that the *public idea* of this profitable culture *has not been reached*, and we still think so,—but if in such a discussion we have to descend to argue the matter with persons who write in this disgusting manner, we beg to be excused. We prefer to hand them over to friend Parsons, and the critic who commends him. It may do for papers who aim to get up "high toned journals badly wanted," instead of those now "edited by persons connected with horticultural establishments," but not us.

FUNGUS IN APPLE SHOOT.—Last month we referred to a sort of gall sent in by Mr. Barry, which seemed new to us. We have since placed it in the hands of a friend who gives all his time to Entomological studies, and who reports:

"The curious production found by Mr. Barry on his yearling apple trees, attached at the base of the leaf-stalk, sent me, is something new. I have found similar excrescences on oak trees, produced by a species of cynips—called the fig-gall—when fresh are crimson and yellowish, plicated and conglomerated along the young branches, at the base of the leaf-stalk; and the general appearance led me to think, like Mr. Barry, that the excrescence was produced by an insect, but on close microscopic inspection, I have come to the conclusion that it is a fungoid production; and if jelly-like, in its early stage, may belong to the class or genus Tremella, the genus character is very uncertain, and seems to be made up of various gelatinous productions."

We shall be very much obliged if Mr. Barry

will send us specimens in their matured state. When under a microscope probably fungoid traces may be found.

EVERGREEN CLIMBERS.—R. B. L., Fitchburg, Mass., says: "We have tried, and tried again, with English Ivy as an evergreen climber, but it does not give us much satisfaction. It is to be regretted that we have nothing of an evergreen character that will in any way compare with this." To which we agree. But yet the Japan Evergreen Honeysuckle is so very beautiful and so very hardy, at the same time so nearly evergreen, that we are surprised so little use is made of it.

ENGLISH FLORAL WORKS.—E. Y. T., Richmond, Ind.—"Can you give me the name and cost of some of the best illustrated Floral Magazines or papers published in English in Europe."

[The *Gardener's Chronicle*, *Journal of Horticulture*, and *Gardener's Weekly*, are liberally illustrated by wood engravings, and are all excellent works. For colored illustrations, *Hooker's Botanical Magazine* in England, and *Verschaffelt's Illustrated Horticulture*, and *Van Houtte's Flores des Serres* in French, are unequalled for beauty and interest.]

PHOTOGRAPHS OF ROUND TUBERED DIOSCOREAS.—We have from Prince & Co. a photograph of the Dioscoreas noticed in another article. They are much rounder than Sweet Potatoes. Indeed, except that they are slightly more irregular in outline, they are no longer than a common oval Potato. The length and depth of the old Chinese Yam were its leading objections. These certainly remedy this character.

SWEET AND SOUR APPLES.—We expect to have a few notes from L. B. for next month's number, on this curious subject.

CROSSED WHEAT.—Mr. Chas. Arnold recently communicated to the *Ontario Farmer*, some experiments on crossing wheat. One of his crossings gave him last year 17 bushels 2 quarts and 1 pint, from 7 pounds of seed. The Michigan amber was the female parent. Mr. Arnold's success will stimulate others to like exertions.

SEED OF IRISH JUNIPER.—J. A. J. C., Davisville, California.—This variety is but an upright form of the common Juniper, and is continued by cuttings—never by seeds.

BLACK KNOTS IN PLUM TREES.—B. S., Winchester, Va., asks: "Is there any known remedy to prevent the Curculio from making knots on the Plum? Some years ago they did not exist in this section, but now it is a serious trouble in Plum culture."

[The best way to keep down the Plum knot is to cut away the branches in the winter that are covered with the knots, and then watch in May and June for the first appearance of the soft matter oozing through the bark, and pinch out by finger and thumb. It is probably a fungus, certainly not an insect. A few years ago it was universally believed to be an insect, but the *Gardener's Monthly* led off against this notion, by showing that the Plum knot came through bark which was often too thick for the little insect to effect, and that the Curculio existed badly in districts where there were no knots, and often troubled Plums little where knots prevailed extensively. This was laughed at, at the time, as the "logic of an ignorant editor," but it prevailed, and it is now the accepted doctrine, that the knot is not of insect origin, and its treatment on this basis has been so successful, that this disease is no longer feared. It is one of those things which we look back on with pleasure, as indicating our labors to make American Fruit Growing a success, have not been in vain.]

SUBSCRIPTIONS TO THE GARDENER'S MONTHLY.—The publishers wish that whenever the occasion calls for it, our friends will let the fact be known, that our paper is only sent to those who pay for it, and *order it every year*. A few friends feel hurt every year that we stop them off; and complain that other journals do not treat them in that way. Let them remember that ours is published for only *two dollars* a year, and yet the *size* of our pages, and the *amount of the lines of type* nearly equal the matter of journals of double the number of pages. Our first year's experience entailed a loss of \$2,000, from parties many of whom would be offended at our disposition not to trust them.

It is strange that those who know their own true interests do not always insist on all their papers receiving *pay in advance*. The *American*

Naturalist started at \$3 per year, but it had to go up to \$4, evidently because so many "honorable" people were not ready to pay, and in their January number they announce that *two thousand three hundred and forty-eight* dollars are yet due them. One would suppose that scientific journals would find more good subscribers, but it seems they too are blest by a class who think it an *honor* to the publishers to be *patronized* by them.

Fortunately, the *Gardener's Monthly* is so popular that we can do without this class, and we rather glory in our motto "Pay in advance." To save this loss, publishers have usually to charge more for the paper, or add to the price of the *advertisements*, on the basis of a "larger circulation" amongst people who would as soon cheat the advertisers out of their wares as the publishers out of their pay.

The publishers have not made any boast that they have "as great a circulation as all other Horticultural magazines combined," because they cannot possibly know that fact; but the system on which this magazine is conducted enables the advertisers to bring their wares *before the very best class of paying customers*, at the lowest advertising rates.

ROAD MAKING.—A Subscriber, Stuyvesant, N. Y., writes: "I am in some trouble about making a road through my grounds. The soil has been excavated to the depth of eight or nine inches, and the road bed filled with rough cobble stones, of all sizes, *thrown in at random*. It was proposed first to cover them with gravel, but I am told now that the stones will be continually working up to the surface, making the road rough and uneven. Now, Mr. Editor, what shall I do with it? I do not like to gravel it in its present condition, and I am a complete novice in road-making. Any information you can give me through your *Monthly* will be most gratefully received."

[The round stones will certainly work to the top. We think this will be the case no matter what you do. It will be too expensive to take them out and break them. Under the circumstances we should be disposed to bear with the annoyance, and have enough cobble-stones broken to cover the surface about two inches deep. Break the size of walnuts. Every spring probably many of the large round ones will work through,—then set a man with a stone hammer

to break them as they lie. Under the circumstances this is the best thing to do.

Road making is founded on very simple principles, easily understood, and yet requires great art to carry out to perfection. First, *the bottom must be dry*, or after a frost the stone will sink in the mud, which will work through the spaces to the top. Then the surface stones *should be angular*, because round stones move about under a wheel, and make "rough driving." The smaller the stone, and the more angular, the tighter it packs—this is the principle of McAdam. The harder the stone also the better, unless the hardness is of that brittleness which will powder like glass when crushed. Provision must be made for surface washings, which will soon destroy a road. Slightly rounded in the centre, the water is thrown to the sides of the road, and trouble often comes here through a miscalculation of the volume of water to come down the road. Try to so arrange the road that if possible no more water shall run down it than falls on it. A road is frequently so made that it receives nearly all the water of the place. Then it is a canal and hard to keep in order. Frequent turn-outs on the surface are the best to keep a road in good order, but they look bad, and hence under-drains are used. But these are liable to choke with sand washings, so deep wells have often to be made below the mouths of the drains into which the gravel will fall. These are called side basins. With a good common sense application of these principles a novice may make a first-class road, but the cheapest way to make a good road generally will be to employ a first-class landscape gardener.]

POLE CATS FOR PEARS.—S. writes: "What will Mr. Quinn do when short of Pole Cats? No more 'culture for profit!' Might I not suggest that a supply be obtained from the *North Pole*? It is said to be a *fur* country; and we own nearly up to the base of the pole. I never thought of it before when admiring the exquisite flavor of Quinn's Pears, but I now see that it proceeded from the *mew*-thylic acid exhaled from the carcass of the Polar quadruped. I have tried almost everything in the way of Pear fertilizers, but never thought of this. You know that Alaska has been considered a poor investment for Uncle Sam, but since reading Dr. Q.'s

experiment, a company of us has been formed to offer the Government one million of dollars for the exclusive privilege of hunting. We pretend it is the Seals we are after,—but in reality it is the *Pole Cats*. Won't we have Pears? Don't let the cat out of the bag, however, until you read of our success in the papers."

LARGE PEARS.—E. R. McK., Lacon, Ill., says: "I think this town can compare favorably, if not outdo any other place I know of in raising large Pears. For instance, an old friend of mine had a Pear tree in his yard that was loaded with nice large Pears, and on one little twig there were eight Pears. He decided to let them remain on the tree until they should become mature, which he did. In the fall, when he gathered them, he weighed them, and the eight weighed nine pounds, one of them weighing twenty-two ounces. He placed them carefully in his cellar, and ate the last of them on the 24th day of December last. They were of the Duchesse d'Angouleme variety.

I give this as a little bit of Pear history, which I think is tolerably hard to beat. I will further say, the last one was sound and nice, as were all the others."

COLD WINTER.—While in our section the winter has been very mild, in other parts of the Union it has been very severe. We gathered a nice bunch of Dandelion flower this morning, January 26th, and the same day brings us a letter from Texas, which says: "We have had an unusually severe winter." It will be strange, if one of these days we have to send to Galveston instead of Boston to fill Philadelphia ice houses!

COMMUNICATIONS.—In our earlier volumes, we gave nearly everything which came to us of an interesting nature, long or short, under the head of "Communications," and appended our own notes when necessary thereto. Some of our readers used to write that these "long papers" were not so interesting as the "short articles" under "Scraps and Queries," and we fell into the habit of condensing many papers which would bear such treatment, for that department. A friend now writes, that "communications would be better filled out a little—the

other departments do very well." This was in response to our request for suggestions as to how our magazine can be improved. Very well, friends; send them along, and we will make use of them.

CHINESE QUINCE.—J. C. W., Staunton, Va., writes: "The accompanying fruit was sent to me from the Eastern shore of Virginia. The lady writer says she knows not what it is—thinks it is of the Quince family—has several trees growing in the garden—makes a good jelly. I send these two to you to have *your opinion*. They smell like the Japan Quince. One specimen sent to me was as large as three of those I send you, but being bruised and decaying, I did not like to send it along. I hope you will not consider it too much trouble to inspect it, and let me know what you think it is—or a *new fruit*. as a Baltimore nurseryman pronounced it."

[This is the Chinese Quince, *Cydonia sinensis*. We are glad to know it is in cultivation, as it makes a very ornamental tree. The rosy white flowers, and showy fruit, will make an interesting variety in our ornamental grounds. As a *fruit*, we don't think it will compete with the common Quince (*Cydonia vulgaris*), and perhaps the flower may not be as gay as the common *Cydonia Japonica*, often called "Pyrus" Japonica; but its different habits and character will give it an interest of its own.]

THE FALLOWATER APPLE.—Discussion still continues as to the orthography of their name. The original name was Farawalter, or Pharawalter, which signifies the Parish Minister; the tree having been found on the grounds of a German clergyman. We do not, however, advocate any change in the orthography adopted by Downing. Just as in the case of Monsieur Le Cure, we have got to say "Vicar of Winkfield." So we prefer to accept what is generally received, than to attempt the impossible task of altering it.

HORSE HOES.—We have before us cuts of two cultivators, both of which seem to have merits, which should make them worth a trial at least. One is "Perry's Scarifier,"—the other

"Lindley's Adjustable Octagonal Horse Hoe." We have seen neither of these, but judge that they may be valuable by their appearance in the engravings.

PEARS IN UTAH.—J. D., writing from St. George, on the Rio Vergen, says: "I am a native of Long Island, and familiar with the large Pears grown there, but can say this country is far superior to that. Mineral substances so abound in the soil, as to have the appearance of a light fall of snow in some places." [The leaf sent for name was probably a *Solidago*, but there are so many leaves like it, without the flowers, or a branch at least, it cannot be distinguished.]

OTTAWA LECTURE.—L., Kansas City, Mo., says: "I have been much interested in the notices of the Lecture given by you at Ottawa, Illinois, and expected to find some account of it in the last *Monthly*, but was disappointed. Can you not give it to us in full?"

[The lecture referred to was prepared for the Illinois Horticultural Society, especially for them, and is therefore their property. We suppose it will appear in full in their transactions.]

WESTBROOK OR SPECKLED APPLE.—R., Freeport, Pa.—*Speckled*, we believe, is the accepted name of this apple. Dr. Warder thinks the Westbrook of Virginia an older name, and another variety. Mr. C. W. Westbrook, the nurseryman at Ridgeway, N. C., may know more of it.

ACTION OF FROST ON SEEDS.—K. G., Bellevue, Nebraska: "Is it necessary to put seeds out to freeze in order to have them grow. I set some Peach Stones last spring and they did not grow. I am told they should have been frosted."

[Frost is an injury rather than a benefit to most seeds. We doubt whether frost ever helped any seed. It is, however, a popular notion that it is of service. This has probably arisen from the observation that frost breaks bottles of water, and splits wet stones. The opening of seeds is a *vital effort*, and the effects of cold on vitality are injurious, and not beneficial. Mois-

ture, air, heat and darkness are the essentials to make seeds grow, and the first the most important of all. Give moisture to a Peach Stone, so that the kernel will absorb it, and then apply a little heat in the dark, and the kernel will swell and split the hardest stone. Hard shells take longer to absorb moisture. Hence time is necessary, but never frost.]

COLD GRAPERY.—H. E. D., Gloucester, Mass. "I wish to ascertain whether grapevines six years old from the bud can be safely removed, and re-planted in the same garden; and if so, at what season of the year it had best be done?"

I have a cold grapery that has been standing five years in a part of my garden that is not sufficiently drained and exposed to the sun,—the fruit and wood not completely ripening before the frosts, and I know of no better way of remedying the difficulty than by putting it upon a more elevated and better lighted spot."

[Vines of the age of yours can be safely removed. April would be a good time.

But we once knew a grapery suffering as yours, which was cured without removal. A wall, 12 feet from theinery and 2 to 3 feet high was built and filled with soil, making a raised border. The roots were carefully lifted as the soil was being put in, and spread just beneath the surface of the new border. It was a perfect success.]

HEARTH AND HOME.—In all our long connection with horticultural literature we have never seen or heard of any charge of discourtesy from us to a contemporary. Our wish and constant aim is to give full credit to all our fellow laborers. We cannot say the same of others' treatment of us. A late number of *Hearth and Home*, for instance, says: "In a late article on *Dionaea Muscipula*, or Venus' Fly-Trap, an account was given of some recent experiments which showed the *Dionaea* absorbs the juices from the insects which it (its leaves) entrapped." It was not expected that a journal which could only refer on another occasion to this magazine, as a "certain Horticultural editor," should care to give credit to the *Gardener's Monthly* for this article on *Dionaea*.

However, we do not measure our rules of

justice and courtesy, by the ill manners of others,—and therefore give place to the following from the publishers of *Hearth and Home*, at the same time explaining that the credit to "exchange paper" was the original fault of a Western magazine from which we copied at second hand. We are the more gratified with the chance to make this correction, as in spite of the little peculiarities we have hinted at, we like the *Hearth and Home*, and wish it too well to want to rob it of any idea which is justly its due:

Thomas Meehan, Esq.—DEAR SIR:—On page 31 of your January number you have an item "Winter Geraniums in Moss," written for *Hearth and Home* by one of its editors. You say to it "Exchange Paper."

We notice that you practice giving the names of the papers from which you quote in other cases, and we call your attention to this case with request that you will do the same with *Hearth and Home*

Yours truly,
PETTINGILL, BATES & CO.

LARGE GRAPES.—We overlooked to notice the following from W. G. B., Cuyahoga Falls, Ohio, under date of November 30: "Last week I cut a bunch of Grapes weighing nine pounds thirteen ounces off a young Prince Albert vine, first year of bearing. As there has been some dispute as to the Weight of grapes grown in this county, please inform us in your next *Gardener's Monthly* whether it has been beaten. Mr. Cook, my employer, sent it to President Grant, with four other fine bunches. I cut eighteen bunches off one vine, weighing from three to six pounds. The Prince Albert I consider the best late Grape that I know of, when properly grown."

[We doubt whether a Prince Albert ever weighed more than this.]

REUBEN RAGAN.—A short paragraph in our paper recently referred to the death of Richard Ragan, of Fillmore, Indiana, in August last. It should have been Reuben Ragan. By a remarkable coincidence another good Horticulturist and reader of the *Monthly* from the commencement, Richard Ragan, of Hagerstown, Maryland, died also in August last.

BOOKS, CATALOGUES, & C.

GEMS OF THE LYRIC DRAMA. Edited by George W. Tryon, Jr. Published by the American Opera Publishing Co., Philadelphia.

It is proposed by a company of music lovers in Philadelphia, to issue bi-monthly volumes containing the overture and principal music of the best operas.

The volume before us contains "Fra Diavolo," and is independently of the music, beautifully illustrated as a work of art. We are interested in the success of the undertaking through noting the names of some of our leading Horticulturists and men of science connected with the enterprise, whose souls are filled with "music everywhere."

THE WEEDS OF MAINE. By F. Lawson Scribner, of the Massachusetts Agricultural College.

This is a littlework of 62 pages, in pamphlet form. Without much pretension, and possibly a compilation, it is yet just the thing to circulate amongst farmers and gardeners—not only of Maine, but of other places,—as the worst weeds are pretty generally distributed, and the means resorted to for their destruction in one State, are alike pretty much everywhere.

HORTICULTURAL JOURNALS.

The *Horticulturist* has now completed its twenty-fifth year. It is a pleasure to note the continued prosperity of this old favorite. Under the management of its present editor, Mr. Williams, the contents are very varied, and always interesting.

The *American Entomologist*.—The last number of this excellent journal contains a brief

memoir of the late D. B. Walsh, whose loss every one connected with rural affairs so deeply deplores. The next number is to have a steel plate engraving, and further particulars of Mr. Walsh.

The *London Gardener's Chronicle* comes to us as the first of a new series. The old style of heading has been lightened; the "general news" columns have been abandoned, and their places filled with Horticultural and Agricultural matter. The *Chronicle* has many readers in this country. It has had an extraordinary influence for good on Horticultural progress in the past, and every lover of gardening will wish the new series the good fortune of the former one.

ANNUAL REGISTER OF RURAL AFFAIRS. By Luther Tucker & Sons, Albany, N. Y.

AMERICAN AGRICULTURAL ANNUAL. By Orange Judd & Co.

AMERICAN HORTICULTURAL ANNUAL. Orange Judd & Co.

These little works are all well known, and are annually looked for by numerous readers, who find summed up in them most of the progress of the year.

GARDEN CALENDARS.

We have before us three admirable little serials, which in addition to being catalogues of their owners' seeds and wares, are useful guides in ordinary practical affairs. Landreth's, Vicks', and Dreer's "Calendars" are the three we refer to.

NEW AND RARE FRUITS.

MONTE BELLO APPLE.—I am indebted to A. C. Hammond, of Warsaw, Ill., for specimens of this new and fine Apple. Mr. H. writes me that it was raised from seed on the place of Matthew Gray, at Riverside, in Monte Bello Township, Hancock Co., Illinois. It is there considered an Apple of great promise, the tree being hardy, rather upright, moderately vigorous, and healthy; an early and annual bearer, very productive, and the fruit always fair and smooth.

Fruit above medium, oblate, regular; skin

pale yellow, shaded and mottled with light red, and splashed and striped with dark rich red nearly over the whole surface, and sprinkled with a few light dots; stalk very short and small, inserted in a broad cavity, russeted; calyx closed, or nearly so; segments short, erect, almost closed; basin medium, or rather large, deep, smooth; flesh very white, fine grained, a little stained next the skin, very tender, juicy, mild, subacid, vinous flavor; quality very good, or best; core medium or small. Ripen

from September to December.—Chas. Downing in *American Agriculturist*.

WRIGLEY APPLE.—Mr. Downing hands us the following note:

"I find the Wrigley Apple named in your January number is the same as Rigley, or Cooper's Redling or Cooper's Market, first described, I believe, by Cox, in 1817, as 'Redling.' It is quite popular in some sections as a late keeping market variety."

[So far as our experience goes, this Apple is most generally known as Cooper's Redling, in New Jersey,—Cooper's Market in the interior of Pennsylvania,—and Wrigley or Regular in North-Eastern Pennsylvania. We suppose "Cooper's Market" will be the most generally accepted name. It is a very showy fruit, an excellent keeper, and a good healthy tree; but in our district by no means "enormously productive."]

DUCHESSE DE BORDEAUX PEAR.—I notice there is much said relating to this Pear as an excellent winter variety,—so it is if properly treated. I would remark that the tree is very productive, and unless the fruit is severely thinned out when young, it will be small and poor in quality; but on healthy trees, sufficiently

thinned, well grown, and well ripened, it is one of the best of its season. When the tree is allowed to over-bear for two or three years in succession it loses its vigor, and the fruit is poor in quality. At least this is my experience, yet it may be different with others.

CHAS. DOWNING.

IRISH PIPPIN.—Specimens of this fine Apple were sent to me by Benjamin Borden, of Norristown, Montgomery Co., Pa., and "is said to have originated with Stephen A. Porter, of that town. Tree a free and upright grower, and forming a handsome head; a very productive and showy fruit, and inclined to bear every year unless the season is unfavorable."

Fruit rather large, roundish, slightly conical; skin whitish, shaded with light bright red and stripes, and broken splashes of dark red, sprinkled with a few light dots; stalk very short and small, inserted in a medium cavity, sometimes a little russeted; calyx closed, segments short; basin small, corrugated; flesh white, fine grained, tender, juicy, with a pleasant, mild, subacid, vinous flavor; quality very good; core rather small. Ripens in October and November, and with care, will keep until April.—CHAS. DOWNING, in *American Agriculturist*.

NEW AND RARE PLANTS.

GERRARDANTHUS PORTENTOSUS.—M. Durieu describes under this name a curious Cucurbitaceous plant growing in the Botanical Garden of Bordeaux. It produces at its base a large napiform swelling, which is said to attain 2½ yards, sometimes more, in diameter. The Bordeaux plant has, in the space of two years, produced a tuber of about 18 inches in diameter. It is, however, remarkable that the young ones which have been propagated from it have not produced the tuberosity to which the seedling individuals give rise. The plant referred to in the above extract from the *Revue Horticole*, must surely be the same as *Gerrardanthus megarrhiza*, of which the following account is given in Harvey's "Genera of South African Plants:" "*G. megarrhiza*, Dene. and Harv., the only species grown in the Natal colony. It has a large placentiform, tu-

berous root, lying on the surface of the soil, 3 to 4 feet in diameter, 1 to 2 feet thick, slightly acid and bitter, and used, as Mr. Gerrard informs me, 'by the Kaffirs for various medicinal purposes; among others they give it to heifers, after the first calf, to increase the quantity of milk; but it appears to deteriorate the quality, for it is said the cows give no butter during the time they are taking the root.'"—*Gard. Chron.*

AGAVE DASYLIRODES (Amaryllidaceæ).—A stemless greenhouse succulent plant, forming a noble tuft of narrowly ensiform attenuate recurved coriaceous leaves, which are from 3 to 4 feet long. From the centre rises a flower-stem, 10 feet long, the flowers bearing on upper part pendulous and densely packed small green flowers in pairs, while below these the whole of the erect

basal part of the scape is clothed with crowded sickle-shaped secund bracts. The plant was introduced many years since from Mexico, and has thrice flowered in the conservatory of the Royal Botanic Society.—*Botanical Mag.*

ALOCASIA JENNINGSII, (Aracæ).—A beautiful-leaved stove perennial, of a remarkably distinct character. The leaves are 6—8 inches in length, peltate, cordate-ovate acuminate, with their blades deflexed from the top of the erect mottled stalks; their ground color is a slightly glaucous green, but their surface is marked with large wedge-shaped blotches of dark brown, almost black, between the green veins, which are bright green. It has been introduced from India by the Messrs. Veitch & Sons.—*Flor. & Pom.*

ACHYROCLINE SAUNDERSONI.—This in its style is one of the most elegant and effective plants, with silvery-surfaced foliage, for garden decoration yet offered to the notice of cultivators. It forms a very dwarf and compact densely-branched shrub, from 4 to 6 or 8 inches in height, being easily retained to any relative under-size required. Its leaves are narrowly lanceolate, close and densely set, the upper and under surfaces being alike silvery white, forming a beautiful contrast with opposite green leaf tints; and it retains its attractive character throughout the winter months for conservatory or greenhouse

culture. Next to its clear and beautiful silver hue, is its remarkably short and low-branched habit, which never runs into exuberant vigor, but uniformly retains it under-growth throughout the year, with nearly the same compactness and dense habit as the ordinary dwarf garden Box. By these attractive features it will not fail to prove an invaluable acquisition for picturesque leaf groups, extensive ribboned lines, and marginal belts, and must eventually be considered as the most neat and effective plant of its class yet offered.—*Gardener's Chronicle*.

GNAPHALIUM TOMENTOSUS.—A very elegant low shrub, of free compact growth, ½ to 1½ feet in height, as required, with pure silvery-grey willow-like outline, snow-white stems, and under leaf surface. It is finely adapted for very effective third ribboned rows, between self-green, chocolate-red, or crimson leaf-tints, retaining its ornamental character throughout the year for conservatory decoration. In freeness of growth, neat habit, and bushy outline, it is superior to any other plant of similar growth and effect yet offered for summer beds. As an outward single or double belt to masses of evergreen shrubs, in extensive pleasure grounds, it is remarkably effective, and equally adapted for portable specimens, in pots, in the formation of temporary groups and beds, and for decoration in basket-work or terrace ornament.—*Gard. Chronicle*.

INTELLIGENCE.

BROOM FIBRE.—The following account from a foreign journal probably refers to the *Genista scoparium*:

"A letter from Calabria contains the following curious statement of an industry unknown to us: In Calabria, in some districts, especially in the Albanian ones, no linen is made except from the broom plant. Hemp we hardly cultivate, and flax is only used by people in easy circumstances. The poor, therefore, are glad to make use of the broom, which abounds on our mountains. In the month of August, when the young plant has attained its full consistency, it is gathered point by point, and bound in bundles of a diameter of about five centime-

tres each; then boiled for several hours in a large cauldron. When the fibrous part only remains, the bundles are removed from the cauldron and carried to some stream or torrent, where they are allowed to macerate sufficiently, after which they are withdrawn from the water, and undergo the necessary preparations. The linen which is made from the broom is white, strong and lasting."

MARK MILLER'S FRUIT FARM.—The *Iowa Register* says:

"A few days since we had the pleasure of visiting the farm of Mark Miller, which is located

about a mile and a half from this city. In choosing the location, Mr. Miller displayed the admirable taste of a true lover of the beautiful, who combines good sense and practical ideas with the ornamental and romantic,—for the ground on which he located is just what a person would mould, or scoop, or carve to their hand, had they the power to do so. He has been on this farm only four years, but in that time he has made astonishing headway toward the growing of fruit and the general ornamentation of his place. An orchard, numbering about six hundred trees, set out at that time, shows the healthiest, thriftiest appearance of any young orchard we have looked through.

What he has done in the Apple tree line, he has also accomplished with Pears, Cherries, &c. All his trees look healthy, and it seems that bugs, caterpillars, borers, &c., which trouble other fruit-growers, don't visit him, but it is probable that their absence is owing to constant care and watchfulness on his part."

SUGARED WINES.—A committee of the Tennessee Horticultural Society, says, In view of indubitable proofs that wines, choice enough for any taste or any purposes, can be produced from grapes to any desired extent in Tennessee, would recommend the society seriously to consider the following measures:

1. To offer no more premiums for berry or other wines than those made from the grape.
2. To refuse premiums to all grape wines not strictly unadulterated; approving thus such only as are made without the addition of *sugar or other ingredients to the pure must of the grape.*

These recommendations are based upon the facts that we now have native grapes, sufficiently endowed with saccharine and other necessary qualities, to furnish wines pleasant and rich, and that, by the use of sugar and other extraneous articles, drinks, any thing but healthful and promotive of sobriety, may be made from the juice of almost any fruit or vegetable, whether ripe or green, and endowed with acid or other properties friendly or inimical to the human system.

As the design of our Society is to encourage refined tastes, habits of sobriety and industry, and so the greatest good of the community, the committee hope their recommendations will not pass unheeded.

A CYPRESS-TREE CONVERTED INTO A DORMITORY.—Lady Mary W. Montague, in her interesting travels, mentions a Cypress tree in a garden at Kujuk Checkmedji, that was converted into this rather singular use. The house and garden which she visited belonged to the "hogia" or schoolmaster. "I asked him," she says, "to show me his own apartment, and was surprised to see him point to a tall Cypress tree in his garden, on the top of which was a place for a bed for himself, and a little lower one for his wife and two children, who slept there every night. I was so much diverted with the fancy, that I resolved to visit his nest nearer; but going up fifty steps, I found I had still fifty to go up, and then I must climb from branch to branch, with some hazard of my neck. I thought it therefore the best way to come down again."

FUCHSIA ROSE OF CASTILE.—This is a grand subject for conservatory decoration. In February of last year I started a batch of about a dozen old plants in a vinery then at work. Early in the following April they began to flower, when they were removed to the conservatory, where they continued in full beauty through the summer. I started the same plants again this year, in heat, and pinched the new growth once; they are once more rich with their delicate flowers, and of the greatest service to mix with such things as azaleas, calceolarias and pelargoniums; there is no fuchsia that I know that flowers so freely and lasts so long.—J. C. C., in *Gardener's Chronicle*.

BRANDY FROM REINDEER MOSS.—Experiments lately made in Sweden, on a large scale, upon the production of brandy from lichens, and especially the reindeer moss, have, it is said, proved so successful as to warrant the practical application of the process. The method is boiling the moss for about eight hours, with six or seven per cent of sulphuric or hydrochloric acid and water, then neutralizing the acid, adding yeast, fermenting and distilling. From 20 lbs. of the air dried moss about 5½ quarts of brandy, of 50 per cent. of alcohol, have been obtained. The theory of the process consists in the transformation of the lichenin or lichen-starch into glucose, by boiling with the acid mentioned, and then changing this to alcohol by subjecting it to fermentation.

HORTICULTURAL SOCIETY OF WESTERN NEW YORK.

At the Winter meeting of the Horticultural Society of Western New York, the following officers were elected for the ensuing year:

President—Patrick Barry, of Rochester.
1st Vice President—T. C. Maxwell, Geneva.
2d " " —C. L. Hoag, Lockport.
3d " " —W. Brown Smith, Syracuse.

Secretary and Treasurer—Sam. P. Wakelee, Rochester.

NORTH CAROLINA HORTICULTURAL SOCIETY.

Col. Steele called together a meeting of the State Horticulturists to organize a society, on the 21st of January, which we believe was a success.

PROCEEDINGS OF THE MONTGOMERY COUNTY, OHIO, HORTICULTURAL SOCIETY.

ANNUAL MEETING.

The attendance on Wednesday, January 5th, 1870, on the occasion of the annual meeting, was much larger than any meeting for a great while.

The meeting was called to order by President Ohmer, and Secretary Heikes read the proceedings of the former meeting.

The essay was read by J. H. W. Mumma, on the "Winter Protection of Fruit and Plants," as follows:

"While many look upon Horticulture as one of the greatest sciences of modern times, as yet not fairly and properly understood, except by the smallest number, who are classed as Horticulturists, I look upon Horticulture as one of the most beautiful in all its bearings, in the cultivation of fruits, vegetables, &c. But there are many failures in this useful and pleasant pursuit. Not because it is not a profitable one, but because there are many who go into the business with the expectation of making a fortune in a few years; but when in the business, they find it not to be the case. The question is often asked me by many that are successful, 'Why, you are making a fortune in that business!' But a fortune is not made in a day, or week, or year. It is by a steady and correct way of doing business that a fair remuneration for the Horticulturist is obtained. It is a business that re-

quires close attention and observation, and to be always on the lookout to see that there is a "place for everything, and everything in its place."

There should be careful study in the purchase of plants as well as the planting of them. One very important object should be kept in view—not to purchase any article because it is cheap, but in the end may prove very dear. I might say, on the other hand, it is not always safe to purchase at too high prices. It is true the most expert will once in a while be caught in the purchase of a worthless article at extreme rates. As a general rule we should always try to purchase of some one that is reliable. As is the case now-a-days there are many new plants, vines, seeds, etc., brought before the public—many that have not been tested—and when tried, are worse than worthless. My main object in this essay is to speak of the protection of plants in winter.

I will give as brief a history of my mode of winter protection as is practicable. But in the first place permit me to ask the question: why is it we find many Horticulturists that neglect this very important part of their work—the winter protection of their plants, flowers, &c? It is not because of the great amount of labor that it requires, though it is accompanied with cost and labor. There is an old adage which reads: "Anything that is worth doing at all, is worth doing well." And that is the rule which should especially govern Horticulturists.

I will say to all interested in the growing of small fruit principally, that a protection of their plants in winter will pay largely. There are many kinds of material used for a winter protection, which I will speak of in turn. I have tried all of those I am about to mention. As the Strawberry is one of my specialties, I will confine my winter protection principally to that kind of fruit. Our climate is very changeable, and causes the ground to rise and fall from the plants, and by that means the roots are left bare in the spring of the year. I have lost thousands of plants in this way, by not having them properly protected in the winter. I planted 11,000 Wilson's Albany Strawberry plants in my Apple and Peach orchard, five years ago, and three-fourths of them I covered with sawdust. I put my plants out about the middle of June, and I applied the sawdust in early winter, but to my surprise in the spring found at least three-fourths of all that was protected with sawdust frozen

out and dead. The other fourth of my plants I covered with the refuse of my wood-house, and to my surprise found them all right in the spring. This settled the point with me, that sawdust would not answer for a winter protection, while the litter proved very good, having the properties of warmth, which the sawdust has not. I have tried spent tan-bark with tolerable good results; but in its new state it is apt to sour the ground, and also cause mildew to plants. This has been the objection of many that have used it. I have seen it thrown on a pile in its green state, and not removed for a month; it had exhausted the soil of all its fertile qualities. I have known sorghum stalks used for protecting Strawberry plants, but from the appearance of the plants in the spring, I judge it was not good for them.

Straw is a very good protection to plants, where it can be procured with little or no grass seed, which is an objection. I have tried it with very good results, where I had it clear of seed. I have also seen straw tried, which set the Strawberry bed with grass, so that it was about as much work to clean the grass out as the profit derived from the berries. Where straw is used it should be clear of grass seed.

I have seen the offal of a flax mill used for protecting plants. I do not recommend it, as it lays too dead, or heavy on the plants, and has to be taken off in the spring; but what makes it more objectionable is the amount of all kinds of seed that is cut with the flax in harvesting it. I consider the leaves of the forest as good a protection of plants as can be had, there being but one objection to them, and that is they are apt to blow away when they get dry. When they can be placed around the plants so as not to be scattered by high winds, I consider them of great value. I have tried them with great success.

The best material I have used for protecting my Strawberry plants is fodder. I have used it with perfect success. I will state here my mode of using it. I have a power machine which cuts and grinds stalks so that they become very fine, and can be worked in around the plants, keeping them protected around the roots so as to prevent freezing and thawing.

For the benefit of my fellow Horticulturists, I would say the machine I refer to is made by B. C. Taylor. It is of double value to me—for feeding stock, and to make bedding for my horses; and I apply it to my plants after it is

thrown out of the stalls. It acts as a fertilizer and a winter protection at the same time. I have used this kind of mulch for my flower-beds in summer, and it has proved very beneficial in holding moisture and keeping the weeds down. It is good to protect all plants, as fodder is free of all seed. I apply a good sized double-handful to a hill of Strawberries, so as to nearly cover it. I leave it on in the spring, and let the plants grow up through it, so the fruit stalks and fruit rest on the mulch.

Fodder is not a very costly material for protecting plants in winter for any one that has a machine to cut stalks. For the mulching of ground around the Strawberry, Raspberry, Blackberry, Currant bushes, etc., and indeed everything in the line of Horticulture, this machine is invaluable for cutting fodder. A machine will pay if two or three fruit growers purchase a machine together, the cost being comparatively light to each person. Now, there are very few Horticulturists that do not plant from four to five acres of corn, and the fodder, in any ordinary season, is worth from one-half to three-fourths as much as the corn, if properly managed. All who have had any experience in the winter protection of plants with the use of fodder, will sanction what I say on this subject.

I would advise all who grow Strawberries, and other small fruit, to give them a winter protection of some one of the three last named articles. If it is but a partial covering it will do better than none. The great fault with too many of us is to plant too much, and protect too little, which is a very great mistake. We should plant less, cultivate better, and give more attention to winter protection, and success will be sure.

President Ohmer was renominated by acclamation, and elected with entire unanimity, every ballot being cast for him.

The President returned thanks for the honor so unanimously tendered. He said he had earnestly labored for the good of the society, and for the cause of Horticulture, and he would continue to do so, whether he was President or not. However, he was grateful for this evidence of appreciation of his fellow-workers, and would endeavor to merit the honor conferred.

TOPICS FOR THE YEAR.

February—Soils and Locations.
March—Selection of Plants.
April—Profits of Horticulture.
May—Birds and Insects.
June—Hedges.
July—Fertilizers.
August—Sub-soiling and Drainage.
September—Grapes.
October—Atmospheric Changes.
November—Winter Protection.
December—Horticultural Periodicals.

The Gardener's Monthly.

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Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

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HINTS FOR MARCH.

FLOWER-GARDEN AND PLEASURE GROUND.

WE are advocates of fashions in flowers as well as of fashions in dress, but often wish that they had more reason in them. Still, so far as fashions in flowers are concerned, we feel that if anything unreasonable exists, it is the fault of our magazine, and others like it, who rule, or ought to rule the leaders of fashion. The great public are too lazy to think for themselves, or are unable to do it. Like the ancient Israelites, who tiring of the old man Moses, and wanting a young man to lead them, shouted for a King, and got soon tired of him,—so our people cry out for a fashion leader, and yet murmur at the slavery their own voice has herein brought on themselves. We follow the Empress or Emperor of the French in our dress fashions,—or the Duchess of Sutherland, or some other Duchess, in our flower gardening, and though rebelling at the absurdity of the styles, acknowledge our weakness, and fall in with the humble crowd. If we can ever get to England, we shall offer Lady Middleton or the Duchess of Sutherland, or some other great lady Floriculturist, a position on the *Monthly* as fashion editress, and with our superior wisdom to suggest rational modes of arranging flowers, have no doubt that it will be a very nice world, and that everything will be just as it ought to be.

When that good time comes, we shall perhaps discuss the question whether it is wise to so arrange plants with colored leaves in masses, that everybody's flower bed, shall be an exact copy of every other body's bed. We would rather go into some old style garden with its Marigolds, and Sunflowers, and wild Pansies, for real en-

joyment, than in some of our modern leaf gardens. Still, it is fashionable to have them, and not having influence enough to control the leaders of fashion, we must go along till it sees fit to alter its mandates.

We fancy the arrangement of leaf plants in masses will be very popular this season. If we cannot have much variety of color or form in the plants in the beds, we can at least have some in the beds themselves, and really some of these beds look very pretty. While in Milwaukee we saw a very pretty lot of beds on the grounds of Mr. D. Ferguson. The snow was on the ground, and we could not see exactly the outlines, but we believe the sketch on the next page gives pretty nearly the idea. It was set along a walk on a narrow plot of grass, with a walk between the two sets of beds, which led to the fruit garden.

So far as the general hints applicable to the every year management of the flower garden department is concerned, the annual pruning must be got through with as soon as possible.

Many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done,—but with March all should be finished,—taking care not to trim severely such Shrubs as flower out of last year's wood, as for instance the *Wiegelia*—while such as flower from the spring growth, as the *Althæa*, *Mock Orange*, &c., are benefited by cutting back vigorously.

If flowers have been growing in the ground many years, new soil does wonders. Rich manure makes flowers grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to

about every fifty square feet will be enough. If the garden earth looks gray or yellow, rotten leaves—quite rotten leaves—will improve it. If heavy, add sand. If very sandy, add salt—about half a pint to fifty square feet. If very black or rich from previous years' manurings, use a little lime, about a pint, slacked, to fifty square feet.

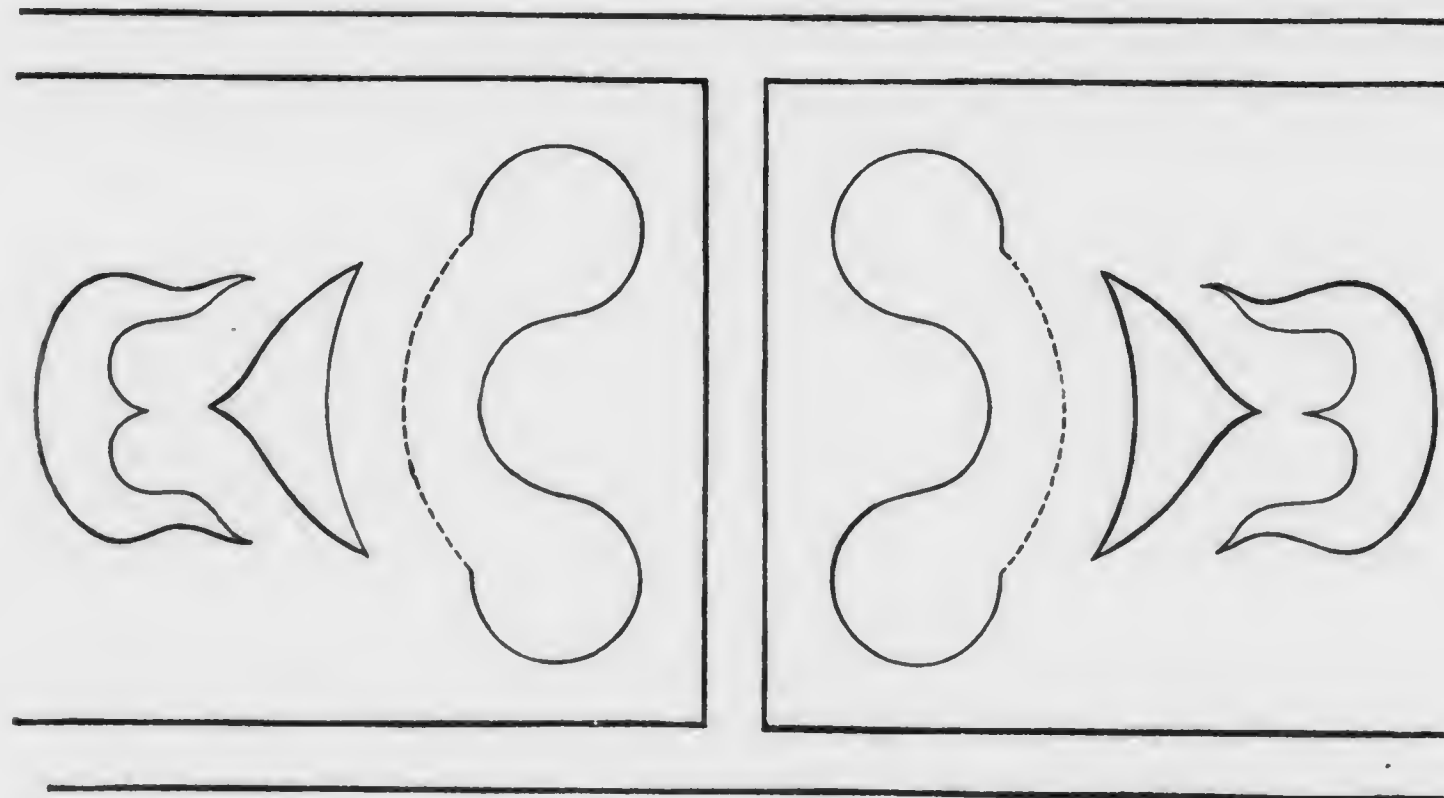
If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

Dig garden soil only when the ground is warm and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to

powder when you tread on it, is time to dig—not before.

If perennial plants have stood three years in one place, separate the stools, replacing one-third, and give the balance to your neighbor who has none.

Prune Shrubs, Roses and Vines. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette Roses are of this class. What are called annual flowering Roses, as Prairie Queen, and so on, require much of last year's wood to make a good show of flowers. Hence, with



these, thin out weak wood, and leave all the stronger.

To make handsome, shapely specimens of Shrubs, cut them now into the forms you want, and keep them so by pulling out all shoots that grow stronger than the other during the summer season.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much worse for removal, cut but little of the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In nursery, where these matters are well understood, trees "never die."

Box edgings lay well now. Make the ground firm and level; plant deep, with tops not more than two inches above ground.

Roll the grass well before the softness of a

thaw goes away. It makes all smooth and level.

Graft trees or shrubs where changed sorts are desirable. Any lady can graft. Cleft grafting is the easiest. Split the stock, cut the scion like a wedge, insert in the split, so that the bark of the stock and scion meets; tie a little bast bark around it, and cover with Trowbridge's Grafting Wax, and all is done; very simple when it is understood, and not hard to understand.

Prepare for some little 'out of the way' notion in the gardening way. The great Landscape Gardeners will tell you to make everything look as natural as may be. Perhaps they are right in a general way; but we never see in nature a pole with a hoop at the bottom, leading a lozen of strings to the top of the pole like a sugar-loaf, with scores of Cypress-vine branches

running over them; trees trained like fans, or a dozen of colors grafted on one bush; or upright Irish Junipers, or Weeping Willows, or, for the matter of that, Double Roses. In fact, in some things, the more unlike nature, if not ridiculous, the better it will please.

FRUIT GARDEN.

Where there is danger of choice fruit suffering injury from late frosts, protect by a few evergreen branches, or muslin. Some trees can be trained so as to be suited easily to different modes of protection.

Take borers out of fruit trees, and wrap oiled paper round the stem at the collar, to keep them out for the rest of the season.

Wash the bark of trees, where not done, to kill the eggs of insects, and soften the old skin so as to permit it to swell freely.

For small places, a plentiful supply of Strawberries, Raspberries, Blackberries, Gooseberries, and Currants should be provided, and the Grapevine by no means be forgotten. These seldom fail to do well. Strawberries do well on a rich, dry, but deep soil. On banks that are not too poor or dry, they seldom fail to do well, and are often three weeks earlier than when on level soil. The Blackberry also will do on a dry, rich bank. We mention this as there are often such spots in small gardens which it is desirable to render useful. *Strawberries seldom do well in low, wet ground.* Raspberries and Gooseberries do better there.

In planting Raspberries they should be cut down nearly to the ground when planted. You lose the crop, of course, but you get good strong canes for next year. If you leave the canes long enough to bear, it will probably be the only crop you will ever get from them. *Never expect anything to bear the year after transplanting.* It is generally at the expense of the future health of the tree.

Grapes that have become weak from age may be renewed by laying down a branch some feet just under the surface, and then cut back, so that one good eye only be left at the surface of the soil.

Any choice fruit may be grafted, at this season, on others less desirable. The scions should be cut before the buds begin to swell, and set in the ground as cuttings. But they should not be grafted till the stock is just about bursting into leaf. Those who have much of this work to

do begin earlier—we speak principally to amateurs with but a few things to graft.

Pruning of most kinds of fruits has been accomplished through the winter. It is customary, however, to leave the Peach till towards spring, in order to cut out any wood that may be injured through the winter. In other respects, the Peach should have little pruning at this season, as it tends only to make it grow more luxuriously; and a too free vigor of growth is a fault of the Peach in this climate. The only pruning admissible is that which has for its object the production of shoots in naked or desirable places.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence on producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

In vineries where they have been forced early, the fruit will be setting, when it is usual not to syringe so freely about the flowers as before. Cold vineries will be about bursting their buds, and should have every encouragement to break regularly, which is most usually accomplished by bending the canes down as horizontally as possible. Most vineries are now built much flatter than formerly, and less anxiety is therefore felt in regard to this bursting trouble. Where vines are grown inside altogether, care must be used to guard against the soil becoming too dry. Usually about the time of stoning, a thorough soaking is given to the soil about them. Where vines grow in outside borders, the objection is that melting snows cool the roots too much, and make too great an extreme between the temperature of root and branch. The best English gardeners now place hot stable manure on their borders, and cover these with boards, so as to throw off the rain.

It may be said of all fruit trees, they should be severely pruned at planting, and every other means resorted to in order to produce a vigorous healthy growth. Fruit, worthy of the name of fruit, is the result of healthy growth the season previous, and it is impossible to obtain both the same season of planting. If any fruit sets in a transplanted tree, it should be remorselessly torn off and cast away.

Whitewashing the stems of orchard trees has a very beneficial effect in clearing away old bark and destroying the eggs of innumerable in-

sects. The white color is bad; throw in a little soot or some other matter to make it brown. In greenhouses sulphur has been found of benefit in keeping down mildew. Possibly if mixed with the whitewash in tree dressing, it might do good against fire blight, and such like fungoid troubles.

VEGETABLE GARDEN.

Where new Asparagus beds are to be made, now is the time; the ground should be rather moist than dry, and be trenched about two feet deep, mixing in with it a good quantity of stable dung, and, if the ground be inclining to sand, add some salt; the beds should be marked out four feet wide, and the alleys about two feet. If pegs are driven down at the corners of the beds permanently, they will assist operations in future years. Having marked the positions of the beds and procured a stock of two year old plants, place them on the soil nine inches apart in rows one foot asunder, making three rows in each bed; then cover the whole with soil from the alleys and rich compost a couple of inches.

To have Turnips good in spring they must be sown very early; they are hardy, and must be put in as soon as the ground can be caught right.

Salsify, too, must be in as soon as possible—it prefers a strong rich loam.

Those who have no Spinach sown in the fall, should do that right away; no amount of stable manure but will be a benefit to it, though guano, in even small doses, will kill it; guano produces excellent Cabbage, mixed with the ground while it is being dug for that crop. Cabbage, by the way, may be put in as soon as the ground is ready; and Potatoes are better in before the beginning of next month, if the ground is not too wet; many plant Cabbage between the Potato rows.

Deep rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too rich or too deep, if we would have good vegetables. It is indeed remarkable, that in many respects we have to go very differently to work to get good fruits, than we have to perfect vegetables. While, for instance, we have to get sunlight to give the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So also as we keep the roots as near the surface as we can in order to favor the woody tissue in trees, we like

to let them go deep in vegetables because this favors succulence.

It is best not to sow tender vegetables too soon, they get checked, and the last will be first. Asparagus is one of the earliest crops to set out. It was believed at one time that the varieties of this would not come true from seed, and that there was but one best kind. We are not so sure of this now. Many plant them too deep and fail; four inches is enough, rows 20 inches, and plants one foot apart will do. Make the soil particularly rich.

To have Brocoli it has to be sown very early, or it will not head. The purple Cape, and white Walcheren are the most popular varieties. In Cabbages there have been many new varieties the few past years. It is hard to decide on the best. The Early Dwarf York is still largely planted for a first crop, and the large Early York planted for a second coming in. The Early Wakefield is, however, very popular in some districts. The Winningstadt is approved as a summer sort, and its tender quality is appreciated. For late crops the Marblehead varieties have justly earned a good reputation, although the Large Late Drumhead, and Flat Dutch are still largely planted. The Savoy's and Red Dutch are also sown now. For protection against the Cabbage fly we find nothing so good as water slightly impregnated with coal oil, and syringed over the seed beds.

Celery for the main crop will do about the end of the month, but a little may be sown now. We have never been able to make up our mind whether there is such a thing as an absolutely solid variety of Celery; and whether pithiness in any degree depends on soil or culture. Certainly we buy all the most improved "solids" every year, and never yet found one satisfactory throughout. We cannot say which is the best of the many candidates.

GREENHOUSE PLANTS, &C.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided with a piece of root to each sprout, and separately potted in four inch pots.

Camellias will require rather more water while growing than at other times. Just before they grow is a good season to graft. Cut down the

stock, cleft graft in the crown, wax and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system, practised by the writer's father, thirty years ago. A shoot about to grow is obtained and attached to the stock as an inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with the young wood in July.

Azaleas succeed well by grafting with the half-ripe shoots of the present season's growth on plants raised either by seeds or cuttings. Old wood does not take readily.

Chrysanthemums should now be raised from cuttings for fall flowering. They make better blooming plants than off-sets.

Fuchsias may now be readily struck from the young growth from the old plants, which will make excellent blooming plants for the next summer season.

Geraniums, Pelargoniums, Cinerarias, and Chinese Primroses must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis—for this on a small scale there is nothing like hot water; on a large scale, tobacco-smoke in sev-

eral successive light doses is still the best remedy.

Auriculas, Carnations, Pinks and Polyanthus—the prettiest of florist's flowers—must be kept cool, just free from frost, with plenty of air, if the best results are desired.

New Holland and Cape plants, such as Aparis, Acacia, Heaths, etc., are now the glory of the greenhouse; hot bursts of sun on them should be avoided, as it lays in them the seeds of "consumption," which frequently carries them off the following summer.

Look out for a good stock of bedding plants in time, by striking cuttings of such things as grow rapidly and speedily, and sowing seeds of such annuals as may be advanced to advantage.

Pansies are coming now into flower. They like an airy frame, where they will not be roasted at midday nor exposed to drying winds, and yet have a free circulation of air and plenty of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season.

Superior varieties can be raised from seed. Choose those with the roundest petals, best colors, and the first flowers that open, to raise seed from.

COMMUNICATIONS.

THE SOUR AND SWEET APPLE.

BY L. B., PHILADELPHIA.

Having for many years distributed and commended the "Sour and Sweet" Apple which I had the honor to bring to the notice of the Pomological Society, at its recent meeting, I beg you to give me the opportunity of stating some facts in its history. I was surprised to hear the expression of doubt in regard to it by Mr. Barry at the time, and also at the argument he presents in your December number against the possibility of a bud hybrid being formed at all.

First, I must confess my incredulity at the possibility of a "sport" producing any tangible mixture of qualities capable of perpetuation. I have had the sour and sweet Apple growing on large and strong trees, not merely for 30 years, as this "sport" has been known, but for at least

36 years; the trees having been grown by my father so early as to produce fruit in 1834, and probably, though as his death occurred in 1838, I cannot say certainly, for at least two or three years earlier. And I have grafted the scions into a hundred other trees, all of which are true to the type of the original.

My earliest recollection, dating back to 1832 or 1833, is of this mixture on which my father congratulated himself as a feat of skill in budding, a mode of propagation which constantly engaged his attention, and by which he filled a large orchard with every variety of cultivated fruits then known. From 1834 forward for twenty years I gathered and stored this sour and sweet Apple, with my own hands, and though the object my father had of mixing a red with a green apple was never attained by him, I had never

heard the question raised as to the fact of his success in producing the Apple which we have for so many years distributed. Certainly it never came from Rochester, and quite as certainly, in my judgment, it never was a "sport." In fact, though grafting and budding every known variety together, and setting Apples and Pears, together on large trees with success, I have never seen the anomaly called a "sport" in any variety of fruit.

Most of the trees of this sour and sweet Apple have the strong growth and lateral thrust of the Greening, but many branches are also upright like Tallman Sweet. I have gathered half a bushel of Apples *entirely sweet* from a tree producing twenty bushels, and perhaps a full bushel could be found *entirely sour*. The sweet ones would be almost exactly the size of the Tallman Sweet, which is but half the size of the Greening, and the greater part of the fruit would be mixed in variable segments of sweet alternating with sour; the sweet segment always smaller, and yellow, would be large, elevated, and identical in taste and color with the Greening. On the sweet ones there was also to be seen the peculiar russet mark characteristic of the Tallman Sweet, which are waved cross lines near the blossom end, and one, two or three marked lines diverging from the stem. Four years since I gathered a few bushels with my own hands, and distributed them as widely as possible, asking a careful examination of them on this precise point. They were so clearly marked in segments, developing the contrast in size, color, taste, and every sensible characteristic, that I supposed no difference of opinion remained as to the fact of mixture of the Rhode Island Greening and Tallman Sweet in the same Apple. The season of 1869 was singularly adverse at the locality of my farm, which is 1200 feet above sea level, in the northern border of Chautauque County, New York, and not only was the crop short generally, but the growth was late and small. In September, at the meeting of the Pomological Society, it was so imperfectly grown as to prevent the production of satisfactory samples, and none, in fact, could be got reasonably perfect at any time. I am therefore unable to distribute them now.

I must insist that the Apple we have grown and distributed, as I have before said, since 1834, as the sour and sweet Apple, originated at that locality. Having been a faithful reader of all the Agricultural and Horticultural period-

icals and reports of New York, from the first number of the *Genesee Farmer* to the present time, I can safely assert that no description or claim other than our own has appeared; and having distributed this Apple myself in Central New York in 1842 and 1843, as my father did to some extent ten years earlier, I think the Apples grown as sour and sweet throughout that section fully accounted for. I have bought them frequently in the Washington and Philadelphia markets for fifteen years past, and have called attention to them on many occasions without hearing of any other original source of distribution. I cannot see, therefore, how so wide a distribution could come from the "Sport" of Mr. Barry's grounds, or from any other sport. Having a large number of Greening trees, in bearing more than thirty years, and having propagated the Greening very largely, I have never seen a sport of this character. If such is the case, no phenomenon of fruit growing would be more remarkable, or better worthy a thorough illustration from all sources.

The possibility of so uniting two segments of buds as to produce a stem in which each shall be represented appears to be one of mechanical accuracy merely. If the sap cells of two grafts, or a graft and a stock, may be so united as to grow together, it cannot be intrinsically more difficult with the parts of a bud, since vitality is represented by small cells only, and the shoot carries into its parts two cellular distinctions, which follow to the fruit and are represented in it, as we know them often to be in the woody stem. The doctrine of "sports," and of a "tendency to sport," appears to me wholly wanting in scientific authority. Whatever is now supposed to be more easy to get along with by charging to "sport," will ultimately be ascribed to a mingling of distinct cellular life, a mechanical hybridization, which the stems and zones of plants and trees readily admit.

CHINESE SAND PEAR.

BY J. H.

I have sometimes met with persons who recommended planting fruit trees by the road or lawn instead of ornamental trees. If we want fruit trees that are purely ornamental we might introduce the Chinese Sand Pear. They are truly beautiful trees when they open the leaf buds in spring, presenting such a unique appearance with the newly formed leaves nearly as

red as the blood leaf Beech. The flowers are pretty and the tree retains its large, deep green leaves late in the autumn, when the Apple and Pear trees are quite denuded. Our single tree bears regularly this season, picking over two bushels of fruit from it, fine and large. They are great bearers, and the fruit, although not eatable, is valuable for canning, or will keep until middle of winter. We esteem them also to make spiced pickles of, and we have thought strange that a tree that grows so readily, is quite ornamental, and as we have found, is also profitable, should be so little planted. There is a variety, a seedling, called the Japan Pear, although neither of them is a true Pear, which is of finer texture, and probably more valuable.

ABOUT RASPBERRIES.

BY ISAAC HICKS, OLD WESTBURY, LONG ISLAND.

While working among our Raspberry plants to-day, it occurred to me that perhaps a little of my experience among them might be amusing if not instructive. Believing that too little attention has been given to this most excellent fruit, which to us is more valuable than Strawberries, because they continue to give us fruit longer and are more easily cultivated, we have planted many varieties.

Our first experiments were with the tender varieties, such as Franconia, H. R. Antwerp, Fastolf, Brinckle's Orange, &c.; but although willing to cover them in winter, our soil did not suit them, and they did not even bear as well as the Purple cane, and we have had to abandon them. The Catawissa bore finely in the spring, its fruit resembling the Purple Cane, but more productive. But the autumn crop was of little value. It ripened slowly, the fruit was not as good as in the spring, and added to this, we found the catbirds ate them as fast as ripe. The Philadelphia thus far is the most profitable fruit for us to grow. No variety we have met with equals it in productiveness, and on our light soil it certainly is good when brought on the table, nicely powdered with sugar, and the spaces filled with cream (or boiled milk, a very good substitute), and few of our guests refuse to be helped the second time. Of course every one likes the Clark, and the bees and wasps are fond of it, too, as we found last summer it was dangerous to pick them without care; but the question with us now is, will the Clark succeed on light soil? We fear not, as ours do not grow and bear as

they do in heavier loamy or clay soils. We also have a small lot of the Elm City, a nice, very early berry, ripening a day or two before the Black Caps last season. It is a pleasant fruit, not a vigorous grower, and is quite too small to be a favorite. Raspberries consume much more time in picking than Strawberries or Blackberries, and no small berry will please us long.

There is no disputing the excellent flavor of the old Purple Cane, but unfortunately they are too small, and take so long a time to pick a quart of them that ours were of scarcely any value. The first year the Duhring bore a fine crop, the next year all were killed by the severity of the winter, and last season they were larger, it is true, than the Philadelphia, but not as productive or of as good flavor. They will be dismissed. Corse's Seedling, from Baltimore, is a good grower, but it does not bear sufficiently for us, and is too small.

We will pass by a few other varieties but little known and notice the Black Caps. Doolittle is too well known to speak of now, but we think the Mammoth cluster is more valuable, but is not as early. We received over 100 plants under the name of Miami, but as our learned authorities of the Pomological Society affirm that they are identical, we care little for the name. The large clusters of fruit, with their rich and pleasant flavor, will delight all who love this class of Raspberries. Summit is the name of a good sweet yellow cap, but it is too small, and the Garden, both disseminated by Doolittle, is with us a poor bearer.

Yellow caps are frequently found growing wild around the fences, and we hope we shall have a variety which will give a good report. Those we have seen change their bright yellow color to a brownish tinge when ripe, which spoils their beauty. Our Yellow Blackberries change their color in the same manner. What there is in the value of the Ellisdale to warrant the high price that has been paid for it we cannot discover. It is of the Purple Cane family, more productive, but we think not of as good flavor, and it must be too soft for long transportation. It is a rampant grower, and requires much more room and care in its cultivation than the Clark, and is not as good, or will, we think, yield as much per acre. We would encourage all cultivators to be on the lookout among the plants they find growing in places remote from their cultivated kinds. Most of our varieties are accidental seedlings,

and the coming Raspberry that fills all our wishes, is yet unknown, or untested.

EXPERIMENTS ON FRUIT TREES.

BY DR. G. B. WOOD.

At a recent meeting of the American Philosophical Society, the usual dry facts of abstract science gave place to a discussion on Horticultural topics, and the following report of what took place will probably interest the readers of the *Gardener's Monthly*.

Potash experiments at one time were very popular amongst gardeners to avoid the cracking of the Pear. Mr. Edward Tatnall, of Wilmington, was particularly an advocate of it. But it has not been found to possess the virtues claimed for it in this respect.

Whether it will prove of any more benefit, permanently, in the present case remains to be seen, but the distinguished source from which the ideas come render them worthy of consideration.

Dr. Geo. B. Wood communicated his experiments and views on the revival of Peach and other fruit trees, by the application of potash to their roots. A discussion followed, in which Dr. Coates, Dr. Emerson, Prof. Trego, Judge Lowrie and Gen. Tyndale joined.

Dr. G. B. Wood described a discovery which he believes that he has made, and which, if verified by further experiments, will be of great value to the agricultural interests of the country. Potash, combined with one or more of the vegetable acids, is an essential ingredient in vegetables, particularly in fruit, which, it is probable, cannot be produced without it. Sometimes fruit trees cease to bear, prematurely; and, in relation to Peach trees, it is well known that, in this vicinity, after producing a few crops, they not only cease bearing, but perish themselves in a short time; whereas their natural life is 50 or 60 years or more. The fact seems to be that potash is wanting in the soil in sufficient abundance to allow the tree to bear fruit continuously. Dr. Wood believes that by supplying potash to the tree, so that it will reach the radicals, and be absorbed, the deficiency may be supplied; the fruit-bearing power is restored, and the tree itself, if prematurely perishing, revived. He was led to this conclusion in the following way: Having a considerable number of Peach trees, which had ceased entirely to bear fruit, and were themselves obviously decaying, and believing, with most per-

sons, that the cause lay in the worms at the root of the tree, he put in operation a plan which he had seen his father perform more than fifty years since, of digging around the base of the stem a hole four or five inches deep, scraping away all the worms that could be found burrowing at the junction of the stem and root, and filling the hole thus made with fresh wood-ashes, recently from the fire, and of course retaining all their potash. The ashes were used with the view of destroying the worms that might have escaped notice. This was done in the autumn of 1868. In the following spring he was himself astonished at the result. The trees appeared to have been restored to all their early freshness and vigor. They put forth bright green leaves, blossomed copiously, and bore a crop of fruit such as they had never borne before; many of the limbs breaking down under their load of Peaches. In reflecting on these results, Dr. Wood came to the conclusion that all this change could not possibly have been produced by the destruction of a few worms; and, besides, there were several of the peach trees treated in which no worms could be found. He was thus led to the belief that the real cause of the revival of the trees was the ashes, the potash of which, being dissolved by the rains, had descended along the roots to their rootlets, and presented to them the very food for want of which the trees were dying. He has, accordingly, had hundreds of various kind of failing fruit trees treated in this way this fall, in the expectation of an abundant harvest next year. Should he live till then, he will inform the Society of the result. Should he not live, the experiment will at least have been put on record.

In answer to an inquiry, Dr. Wood said that the soil was of all kinds, sand, loam and clay.

Dr. Coates remarked that trees at first grow slowly, and have but little chance to get potash from the limited area which they occupy. For instance, around the body of large trees there are seldom other growths.

Dr. Emerson gave his experience of peach growing. The Peach, brought from Persia, loves a mild climate, and suffers when brought North, unless protected. When first brought to this country it grew luxuriantly, in all parts, well. Of late years, however, owing to the clearing away of the forest, which afforded it the same kind of protection which, in Northern Europe, was given it by glass, it has become limited to the soft climate of the peninsula between the

Delaware and Chesapeake Bays, where it has no disease and bears abundantly. The "Yellows," however, although looked upon as a disease spreading from tree to tree, is in fact produced by colonies of a parasite, which propagates under favor of a low constitutional condition of the tree, produced by the failure of the necessary climatic protection. As to the nourishment of the tree, salts, especially of potash, are very nutritive. But there is another element in wood ash, phosphorus, which is the prime mover of all vegetable life. Dr. Emerson described one of his unpublished experiments, with a peach orchard, which yielded inferior fruit, but only as to color; otherwise the fruit was as good as others. He gave a top dressing of 200 or 300 lbs. of superphosphate to the acre, and the next year his Peaches brought 10 or 20 cents more in the market. At a certain exhibition, some Pears of a very high color were displayed, which brought a very fine price. (Their raiser had used dog dung in quantities) which lent additional force to Dr. Emerson's belief that phosphoric acid heightened the color of his Peaches.

Dr. Wood repeated that his experiment bore especially upon the mode of application of the potash. The spreading of potash over the surface of the land produced no great result. But, when placed where the rain water would carry it along the descending roots down to the rootlets, it is immediately absorbed by the plant, and produces its effects.

Judge Lowrie said that he bought, in 1838, a wild place near Pittsburgh. It was covered with forest trees and underbrush. He cleared away the undergrowth and weeds. Within three years he discovered that all the walnut and hickory trees were beginning to die, although in rich soil, and 4 or 5 feet in diameter, and some of them one hundred feet high. In the course of five years none were left. The oaks, maples, lindens and elms were not affected.

Prof. Trego said that in Bucks county, black walnut trees, planted along the fences, grow and flourish well, and are not hurt by standing quite alone as shade trees. He had placed wood ashes around the foot of a fine pear tree, banking it up around the tree, but it had no effect. Peach trees have many roots running horizontally, and the rootlets are near the soil. To this Dr. Wood replied that, according to his observations, they descend into the ground obliquely.

General Tyndale said that the finest peach grounds in the United States are the highlands

of Southeastern Tennessee; the tops of mountain spurs of the Cumberland plateau, around Chattanooga, above the conglomerates of the Coal Measures and the cavernous limestones of the sub-carboniferous, two thousand feet or more above sea-level, and many hundred miles in the interior of the country.

CHESTNUT HILL.

BY CHRONICLER.

January 11, 1870, being a pleasant day, we took our first trip out to Chestnut Hill, and spent nearly three hours in admiring its improvements. It is a large town, of highly ornamented gardens; adorned with chaste cottages and elegant mansions, with unique stables, &c, to match. The highways and dividing avenues are strong McAdamized roads, with sidewalks high and dry, and paved. The many churches are all noble looking structures. But the most striking beauty of the place on a winter's day, consists in its numerous evergreen hedges, shrubs and trees. The hedges are made of American, Chinese, and Siberian Arborvitæ, Hemlock and Norway Spruce, all of thrifty growth, kept smooth with the shears, and each one shines in its own peculiar beauty. Nearly all the well known flowering climbers and deciduous shrubbery are grown and kept in neat trim. Among the evergreen shrubs there are the various species of dwarf and tree boxwood, yews and junipers; and of the arborvitæ, the Chinese, Siberian, the Globe and the Golden. The larger species are kept compact and neat by clipping, and all make a charming display. The trees most plentifully set out are American Arborvitæ, the American white and yellow Pines, Scotch and Austrian Pines, the Balm of Gilead and Silver Firs, and the Hemlock and Norway Spruce, all of thrifty growth, and make a beautiful contrast with their different statures and habits of growth, and various hues of verdure upon some small grounds. All the species are growing upon spaces not over a fourth of an acre, around the houses, and the spread of their branches are kept within certain limits by judicious annual pruning. Every species is trained in the natural form of its growth, and is a dense mass of foliage from base to summit. There is room enough left between them for air and light, and the grass to grow around them; so none of them suffer from suffocation, nor the *mange*. There they show the practicability of growing evergreen trees (even

of large growth) upon small spaces of ground, and every one a model of perfection. Every tree well taken care of is a lasting blessing, and those who neglect them lessen their own enjoyment.

Upon larger grounds, the trees are set wider apart, and grow up as nature directs them. They look more elegant that way, though less massy, than those that are annually pruned. Now, in comparing the individual beauties of those trees, we think, that for erect and noble stature, elegant form, graceful foliage, and smooth, clean and shining bark, the White Pine (*Pinus Strobus*) excels them all. The Silver Fir (*Picea pectinata*) and Hemlock Spruce (*Abies canadensis*), are also remarkable for their clean and smooth bark and leaves. The Norway Spruce (*Abies excelsa*) serves as a double link in evergreen embellishments; it makes an ornamental hedge, and a noble, handsome tree.

Among the larger evergreen shrubs, the Chinese Arborvitæ has the cleanest look, and foliage of the liveliest green, and forms a compact, massy bush, by annual clipping, and kept under seven feet tall. Among dwarf evergreens, the dwarf Boxwood (*Buxus sempervirens*), shows the liveliest green, which it retains in all weathers, and makes a pretty bush by annual clippings.

We know that the *White Pine*, *Chinese Arborvitæ* and *Dwarf Box*, will be among the last chosen by many, because "they are common," yet that does not detract from them their surpassing beauties.

All our various species of ornamental evergreens are needed for contrast; not one can be spared. Even the Austrian Pine (*Pinus Austriaca*), though a nondescript of coarse awkwardness, and slow growth, makes other evergreen trees look the more beautiful by its ugliness.

It is likely that many of the newer ornamental evergreens are growing on Chestnut Hill. The following are of great beauty: *Abies Douglassii* and *Mensiezi*, *Buxus Fortunii*, *Cedrus Africana* and *Deodara*, *Cephalotaxus Fortunii* and *drupacea*, *Cupressus Lawsoniana*, and *McNabiana*, *Picea Cephalonica*, *Grandis*, *Nobilis*, &c., *Pinus excelsa*, *Coulterii*, &c., *Retinospora plumosa-leptoclada*, &c., *Taxus elegantissima*, *variegata*, &c.; *Thuja gigantea*, *cristata*, *Tom Thumb* and *Rosedale* varieties, &c.

As the above is principally intended for the distant readers of the *Gardener's Monthly*, we may state that Chestnut Hill is eight miles north of Philadelphia, and a forty minutes ride by its own railway. It is a high piece of land, very

healthy, and has an extensive view of the rich and beautiful landscape surrounding it, dotted with forest clumps, farm buildings, elegant mansions, &c.

LETTERS FROM THE PACIFIC COAST.

No. III.

CLARK'S RANCHE, Oct. 23rd, 1869.

Dear Monthly: And now, what shall I say of the Yo Semite; or rather, what in so small a space as a single letter, must be left unsaid? Indeed, pen cannot describe, nor pencil trace the manifold beauties of this lovely spot, and do it justice. I have ridden for hours beneath the giant pines and firs that are dotted in groups and masses on every side, and found it impossible to comprehend the vastness and sublimity of my surroundings, short of days of study. The great rocks towering almost perpendicularly above us, appear taller as we gaze, and the bright sparkling water-falls pouring over the immense heights, grow more brilliant as we watch the sun light playing through the mist, until calm and untroubled they mingle with the mirror-like surface of the beautiful Merced River. The Yo Semite Valley is 4,000 feet above the level of the sea, and is, I think, about ten miles in length, and from one half to one mile in breadth. On either side are the great mountain peaks, rising abruptly, and averaging 4,000 feet in height, thus forming a perfect barrier to either ingress or egress, excepting by the trails at the northern end. The steep declivities present the appearance of gray granite, and are mostly bare of vegetation, with here and there a shrub or tree springing up out of the many crevices in the rocks. In fact the tops are generally wooded, with what appear to the spectator from below, small shrubs; but which upon approach, prove to be Conifers of the largest size. In the valley, these immense evergreens grow to astonishing dimensions. I measured *Libocedrus decurrens* 25½ ft. and 24 ft. in circumference; *Pinus ponderosa* 21½ ft. and 18 ft.; *Abies Douglasii*, four of which stood in group, were respectively 18½, 18½, 18 and 18 ft., and three others 16½, 17, 17½ ft. An *Abies grandis* measured 13½ ft. around,—all the above being taken five feet above the ground, to avoid the almost universal enlargement at the roots. Our first day in the valley was unfortunately the commencement of the rainy season, and owing to a succession of showers, we were compelled to

keep under our roof, and enjoy the landscape as best we might through the open door. Immediately in front was the lovely Yo Semite Fall, 2,534 feet in height, now increased in volume by the recent rain, and pouring over the rocks in a perfect sheet of spray. This body of water forms three distinct falls before reaching the valley, thus adding to its attractiveness. The first is 1,500 ft.—then striking a projecting angle of the rock, it glances off, and forms the second, 434 ft.—and lastly from its level bed, it makes the final plunge of 600 ft. to the huge masses of debris in the valley below.

Towards evening the clouds became scattering, the rain ceased, and we mounted our ponies for a trip to the "Bridal Veil" Falls, called by the Indians "Spirit of the Evil Wind." After a wearisome clamber over the rocks, we are well rewarded for our exertions, by a near view of this silvery cascade. The last rays of the setting sun light up the spray, and produce a brilliant, misty, gauze-like effect, beautiful beyond description. It is well named, for nothing in art or nature could possibly exceed the feathery lightness of its appearance. At the base of the mountain, it rushes madly over and amidst huge boulders of granite, until lost to view in the copse beyond. Here the pure invigorating mountain air is fragrant with the odor of Laurels, which the slightest contact visibly increases; and the flaming scarlet of the *Zauchneria* dazzling in its brightness, adds to the general beauty. Groves of the *Oregon Maple*, (*Acer macrophyllum*), hang their great leaves over the stream, and a species of *Sambucus* with remarkably pubescent shoots and edible purplish fruit is in abundance. An occasional specimen of *Rubus Nutkaensis* is also noticed, but not in fruit. Another night's rest, and our tough little steeds are again in requisition for a visit to the main falls, and where the largest body of the Merced River enters the Valley. After a laborious ride of three or four miles, over as rough and hilly a path as one can possibly imagine, we are at last compelled to leave our horses and proceed on foot. The wild scenery now becomes picturesque in the extreme and the lover of nature finds new wonders at every step; but we hasten on, and soon the roaring of the distant cataract is distinctly heard.

Slowly and cautiously we climb over the huge rocks, many weighing hundreds of tons each, and torn from their mountain beds by the storms and frosts of many winters, until turning the ab-

rupt corner of a jutting cliff, the Vernal Falls break upon our view in all their grandeur. Although apparently so near, we must devote an hour to the arduous ascent, before we can stand at the base of this sheet of water; and so with the music of the cascades deadening all other sounds, we pass on up, until we can feel the spray sprinkling our persons, and the rarest of delightful breezes cooling our fevered cheeks, and now almost exhausted, we stop to regain our strength. It certainly requires a lively imagination to comprehend the various accessories that combine to make this spot such a finished picture,—such a perfect illustration of all that is grand and overpowering in the wildest form of natural scenery. The Vernal Falls are 350 feet in height, and as we had the pleasure of viewing them after the recent rains, the Indian name of "Pi-my-ack," literally "Cataract of Diamonds," seemed especially appropriate. Looking through the bright sparkling waters to the opposite rock, appearing as if hung on a prominent spur, was the most enchanting circular rainbow I ever witnessed; and indeed the illusion was only broken when we had once more continued our progress up the dizzy heights. Here we met some Indian hunters; each with a deer strapped upon his back, carelessly and lightly leaping from rock to rock, and running down the declivity like goats; whilst we, with the greatest care, could scarcely walk erect. In the crevices of the rocks, I find many pretty little species of ferns, fresh and vigorous amidst the continual spray,—a silvery leaved *Gymnogramma* with its golden spores, being particularly attractive. A *Sedum* too of the smallest size, grows luxuriantly in many places, and a gnarled Oak, with long pointed acorns, forms a new and puzzling prize; so that with a very slight effort of the imagination, we can readily appreciate the guide's story of Flora's great beauty in the early spring. We wander through the dense forest of pine and spruce, and are soon in front of the Nevada Falls, where the water pours down a perpendicular leap of 700 feet, into a circular basin, almost miraculous in its depth, but pure as amber in its translucent state. Far from satisfied, but with a foreboding of the work yet to be accomplished ere reaching the valley, we reluctantly bid adieu to our romantic surroundings and prepare to retrace our steps. Once more on the plain below, we enter an Indian village, where we are vociferously greeted by curs of every description and half nude children, dirty and weird looking, who

stare and chatter and beg by turns. This is their harvest time, and the large quantity of dried acorns heaped around, were sure indications of its plenty. The process of preparing their winter supply, was of no little interest. The nuts are collected as they fall from the trees and carried in sacks to the village, where the women and children gather around the heap, and commence the operation of nutting. This is performed by biting off the end, and then by a dexterous twist of the fingers the kernel is laid bare and split open; these are at once conveyed by children to a flat rock in the near vicinity and evenly spread over the surface thereof to dry; after the moisture has all been extracted, they are gathered up and placed in their storehouse,—a curious basket-like contrivance formed of willow twigs, and elevated some three feet above the ground, where they remain until needed for use. The preparation of this article for food is primitive in the extreme, but answers every purpose. The dried kernels are placed in the hollow of a rock and ground to a powder, by means of a smooth stone; and the meal after mixing with water to the consistency of mush, is placed in a tight closely woven basket and is then ready for the cooking operation. A shallow hole in the ground forms the receptacle, and after the introduction of hot stones into the paste, the whole is well covered up with soil; thus the cooking and extraction of the tannic acid is performed at once by the simple method employed. We were cordially invited to test the delicious delicacy, but after the unwashed fingers of numerous owners had previously been inserted therein, our digestive organs rebelled, and we accordingly declined with thanks. One of our party, who was determined to obtain knowledge, despite the adverse circumstances, boldly shut his eyes and complied with the wishes of our hosts; but his report was not sufficiently satisfactory to induce a repetition, nor to persuade his companions to emulate his example.

The last day of our stay in the Valley, was devoted to an examination of the autumn flora of this region, and more especially to the plants inhabiting the deep canon above Mirror Lake. This charming little body of water is so pure and translucent, that the surrounding cliffs and trees are as plainly reflected on its surface, as is a near image on the polished plane of the most costly glass. Looking into its perfectly calm and untroubled waters, we could distinctly see every pebble on the bottom, several feet below.

After tethering our horses, we were soon exploring the vicinity of a mountain stream for specimens, and with handkerchiefs, bags and portfolios soon loaded with weeds, we could easily pass for the "great medicine men," that the chance Indians we met, readily granted we were.

The most beautiful species of Oak seen in this region, was *Quercus fulvescens* of Kellogg, afterward called *Q. crassipocula* by Dr. Torrey. The tree is only of medium size, but the beautiful foliage reminds one of a fine specimen of Holly; glossy on the upper surface, but of a glaucous yellow color below. On some plants the foliage was remarkably dentate, whilst on others, it was entire. The most striking effect however, is produced by the fruit,—the long pointed acorns being set in a saucer shaped cup, which is completely covered with a bright golden fuscous coat, like soft velvet. The most prominent species of oak found in the valley, is undoubtedly *Q. Kelloggii*, a near relative to the Black Oak (*Q. tinctoria*.) of our Eastern States. It here forms quite a large tree, and the fruit being also larger than others, as well as exceedingly plentiful, the Indians prefer it for their winter stores.

Close to the stream, the deciduous portion of the timber was confined to a few species; the most plentiful of which were the *Acer macrophyllum*, now laden with their many loose racemes of beaded fruit; *Populus monilifera*, straight as arrows, and growing in dense clumps; *Cornus Nuttallii*, with luxuriant foliage and round, bright scarlet heads of fruit (compact spherical capitulum of botanists); *Oreodaphne Californica* of Nees, (the Californian Laurel,) sometimes called *Laurus regalis* incorrectly, with long, dark, glossy leaves, emitting an exquisite fragrance; and then innumerable thickets of shrubs, embracing a small species of *Cornus*,—possibly *C. paniculata*; several kinds of *Ceanothus*, *Pentstemon*, *Sambucus*, &c. Clambering over the rocks, we detected the *Lonicera Californica* (California Honeysuckle), with its wealth of scarlet fruit; and growing in dense clumps, were fine specimens of *Symphoricarpos* (Snowberry). Numerous dried stalks of different species of Lilies and other bulbous plants also attracted our attention; for next to obtaining a fine specimen for our herbaria, was a desire to procure the seeds or roots. On the mountain top above us, was growing a fine specimen of that chief of Junipers, the *Juniperus occidentalis*, with silvery resinous foliage, and large, dark purple berries; the wood of this species, unlike our *J. Virgin-*

iana or Red Cedar, is pure white in color. All around were the usual Conifers, already mentioned, with their now ripening canes just beginning to fall. The Indians have a sagacious method of collecting these seeds. Aware of the fact, that squirrels can detect the cones with fully developed seeds, they watch the little animals carefully cutting off only such as are perfect, and immediately gather them up and await a fresh supply. Thus two points are gained,—the trees with their long naked bodies of 75 or 100 feet, prevent all idea of climbing up to the top to the treasure in the first place; and secondly, the squirrels with a natural instinct that teaches them to select such cones as will best repay their labor, saves the collector much unnecessary annoyance.

As the last rays of the setting sun falls on the topmost peaks of the mountains above, we return to our transit home, well pleased with the result of our day's work. But I have said nothing as yet, in regard to the many objects of interest contained in the mountains themselves. To the readers of these letters, who imagine that the range of rocks surrounding this valley is tame and monotonous, I would remark, that travelers who have visited the most noted scenery of the old world, emphatically declare that the Yo Semite cannot be equaled in point of wild romantic picturesqueness and truly awful grandeur. As we enter the Valley at the northern end, the first object that attracts our attention is the rock known as "El Capitan," or by the Indians as the "Great Chief of the Valley." This massive wall of granite rises perpendicularly to the height of 3,100 feet, presenting a bare smooth surface, without a tree or shrub to relieve its aspect; on its surface, several hundreds of feet in the air, we notice the curiously formed outline of a human being, which has received the title of the "Old Man of the Mountain." The figure is in a stooping posture, with one hand pointing down the Valley; his great broad-rimmed hat is very well shown, and the life-like features are excellently delineated. Opposite El Capitan are the "Three Graces," embracing that number of rounded mountain tops, 3,750 feet high. Near by are the "Cathedral Spires" with their sharp pointed turrets side by side, extending up into the air 2,400 feet. The "Sentinal Rock," 3,270 feet high, stands alone in all its majesty of expression, and certainly well deserves its suggestive title; its clean

shaft rising far above the clouds, appears as if it special task was to keep watch and guard over the beautiful vale below. Two of the most imposing peaks are undoubtedly the "North Dome" and the "South Dome," situated on either side of Mirror Lake, and respectively 3,725 feet and 6000 feet in height. Standing in the vicinity of the Nevada Falls and looking down the Valley, the form of the North Dome is so accurately rounded, and so completely proportioned, that we can scarcely disabuse our minds of the idea of artificial aid in its construction. The immense height of the South Dome, forms a grand and prominent feature in the contour of this locality. The Indian name of "Tis-sa-ack" literally, "Goddess of the Valley," proves how appreciative the untutored mind can be, when conferring appellations on the natural objects of beauty. Beyond the South Dome we can distinctly discern the outline of the tallest spur of the mountains called the "Clouds Rest," which is 6,450 feet in height. In close proximity to the North Dome, are the "Mountains playing at Leap Frog," so called by Indians, in allusion to the position of three leaning cliffs, one above another, and each in the attitude of springing out in the air. The inhabitants of the Valley call them the "Three Brothers," and record their height at 4,300 feet. "Washington's Tower," 2,400 feet; "Cap of Liberty," 4,600 feet; "Sentinal Dome," 4,500 feet and "Mt. Starr King," 5,600 feet, are all objects of deep interest to the visitor, and affords an equal pleasure to those more particularly described.

After four days of unalloyed pleasure, I bade farewell to the Yo Semite, and in company with a botanical friend, passed down the banks of the Merced River, with the bright speckled trout sporting in its clear waters, as if playing at "hide and seek" among the rocks that formed its stony bed. We turn in our saddles for a last lingering glance at the fleecy clouds, hanging like a veil on the mountain sides; whilst far above on their topmost peaks, the snow had covered them with its pure white canopy,—a curious contrast to the warm summer-like climate of the Valley below.

We leave these scenes with mingled feelings of pleasure and regret,—of pleasure, in the rich promise of many an object of interest dear to the sight of a lover of nature,—of regret, for the passing away of all that has enlivened and

cheered us in the many happy hours spent in this delightful spot.

Sincerely, &c.,
JOSIAH HOOPES.

ABOUT PHLOX DRUMMONDII AND OTHER THINGS.

BY JOSEPH AMRAM.

A friend at our house last week was discussing the question, whether in the *Phlox Drummondii* the termination should have two i's or only one; of course the meaning of the thing is Drummond's Phlox,—and this puts the matter in the 'genitive' or 'possessive' case, as we say in grammar. So we turned to the Latin grammar, and we found that Latin nouns ending in *us* made *i* in the genitive, and when ending in *ius* made *ii* in the genitive. Our puzzle then, was to know whether Drummond when rendered into Latin should be Drummondus or Drummondius. My friend insisted that the only rule in making new Latin words, as these plants names really are, is to go by sound. It will depend on whether the accent is on the first or second syllable. If Drummond it should be Drummondus, and of course *Phlox Drummondii*; but if Drummond, then Drummondius, *Drummondii*. He thought that the first was most likely to be the proper sound of Drummond, and therefore *Phlox Drummondii* would be correct. I could only say that it seemed right, but that authorities always used the two i's. We compromised the matter by agreeing to drop the Latin name altogether in our common conversation, and always say merely "Drummond Phlox."

And this brings me to ask why not use these names oftener than we do? To be sure some of them are worse than the hard names I would avoid. "Lovelies Bleeding," "Robin run in the hedge," Joseph's Coat, Rag, tag and bob-tail" and such expressions, are worse than *Warcewiczii*, which our gardener pronounces "worst kind of whiskey I," or any other tremendous effort of the Latin tongue.

But there are names not intelligent or rough which one might use,—and where there are none, I do not see why some one in authority might not make them so as to be generally acceptable. I remember while a reader of Downing's *Horticulturist*, that he gave the name of "Golden Bell" to the *Forsythia* on its first appearance. It has proved generally acceptable, and we have only to picture to ourselves what

we should all be, twisting our mouths to say *Forsythia viridissima* on every occasion, in order to thank Downing and all those good friends whose foresight keeps us out of all these evils.

I suppose I am treading on dangerous ground, and that you, Mr. Editor, will want to differ from me. I fancy I have heard all you will want to say before. You would keep together "the harmony and unity of the science." "A Frenchman, a German, and so on, all know Latin, and thus know what is meant at once on reading the Latin word." All this well enough for botany. I say let there be botanical names by all means; but let us have garden names as well. My two girls are Charlotte and Jane, respectively; but it seems more home-like, and does, I think, bring them nearer our every day hearts to call them Jenny and Lottie,—and so I am sure we can appreciate Pansy, Gilliflower and Mignonette, better under these names, than we ever could as *Viola tricolor maxima superba*, *Reseda odorata*, *Mathiola annua*, or the sweetest Latin sound ever uttered. I think so.

And now about these Drummond Phlox; is'nt it strange how much they have been improved by seed selections. I remember the first time I raised a packet of them; the plants all produced flowers of a pale rose color. After some years, one was noticed with a little deeper color, approaching crimson. In those days we were under the old law of the botanists, that like producing like applied to species; that varieties would not reproduce themselves again from seed; so we tried to raise this crimson tinted Phlox from cuttings, and well I remember how carefully we petted the weakly things so raised. But the florists soon got ahead of the scientific men. You praise Darwin for his great discourses in these matters; but he should'nt have all the credit. Hundreds of us who loved flowers, and who knew some of their little secrets, as only lovers can know, saw that varieties would as truly perpetuate themselves from seed, as undoubted species, long before Darwin took the field. And it was thus we found that if we kept the crimson Phlox separate from the others, so that there should be no chance of intermixture of pollen, we could get crimson Phloxes from seed, just as pure and good as if we raised them from the cuttings.

Since then, what changes there have been in these pretty little flowers. We have now Drummond Phloxes of all shades, from white to deep crimson, and all these can be perpetuated from

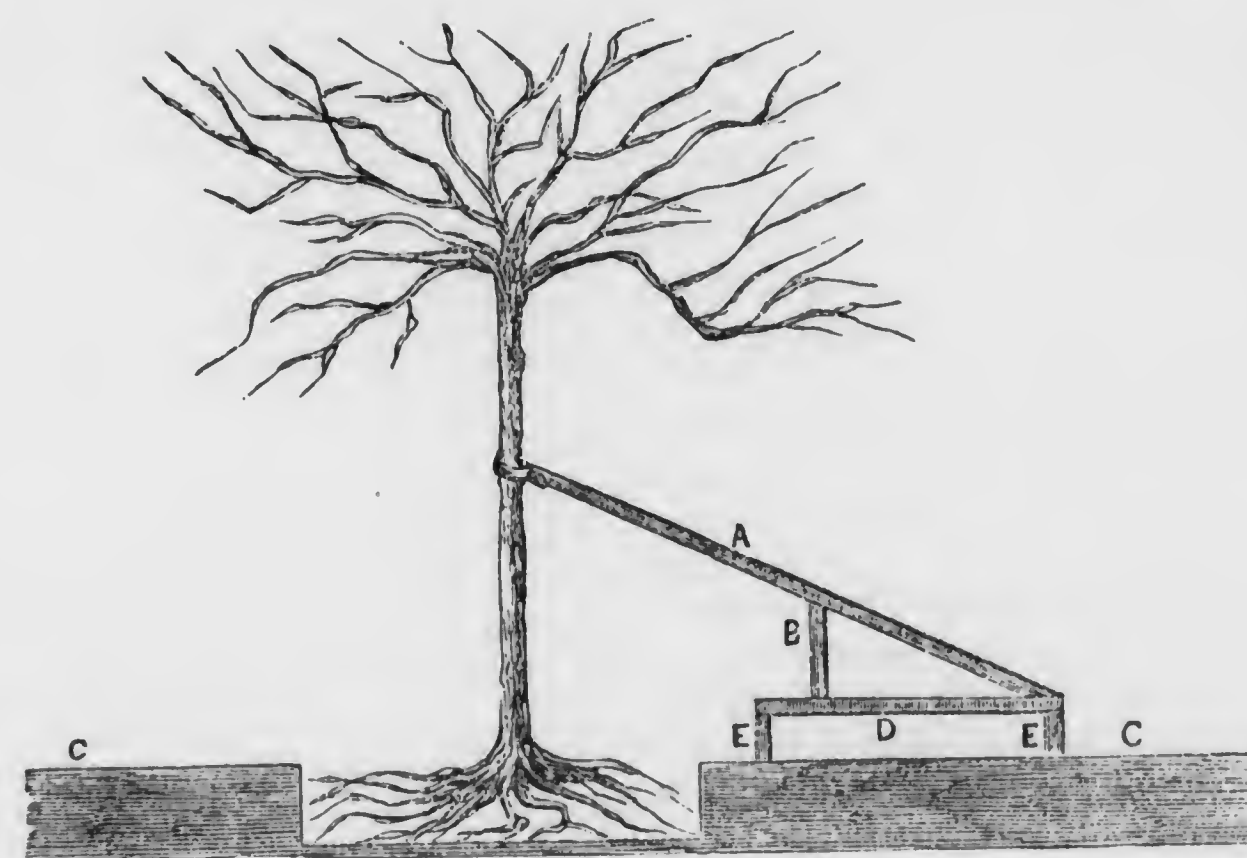
seed as well as we once thought only true species could.

I often wonder if the Indians had any love for flowers; of course they could not be botanists as we understand it; but I suppose some of them, as with us, must care more for such things than others, and once in a while no doubt, some one or another among them, noted pretty closely the various pretty flowers growing wild about them. How such an one, who perhaps admired the pretty Drummond Phlox in its Californian home, would stare at the numerous shades of color and form the plant now exhibits in our garden borders. And all this, not by any peculiar skill on the part of our seed growers; but simply by watching for any slight change in the

color of a seedling, and then again perpetuating it by seeds.

This is I see too far a rambling letter. Perhaps you can cut it up and make some use of it for your scraps and queries, at any rate,—but I find I have not yet come to the kernel of the subject I started out to speak on. It was this:

I wanted to suggest to ladies and gentlemen who take pride in gardening, how so many new Drummond Phloxes were raised—that there is no skill or great secret about it; and that if they will look out and save the seed of any little variation they see in their flowers, they may have as good varieties as they often have to pay a dollar a package of a dozen for, and besides feel something of the pride of authorship.



A TREE HOLDER

BY MR. A. PAYNE, SCIPIOVILLE, N. Y.

Having frequently to plant trees alone, I have had to invent a contrivance to hold the tree, while filling in, which may be useful to others so situated.

It is easily made. A piece of plank two feet long, one foot wide, and one foot thick, makes the base (d), which rests on two pieces of plank or feet (c) ran crosswise to the base. The arm (a) is about five feet long, and has a piece of leather string go round the tree, and fasten to a nail as a button, to hold the tree. A brace (b) stiffens the whole—(c) is the ground line.

A GOOD WHITE WINTER FLOWER.

BY P., BALTIMORE, MD.

In these days, Mr. Editor, when so many people wander after new things, it is perhaps worth while to remember the merits of old friends, especially when they will do for us all that the best new comer ever could be expected to do. Of this class is the *Double White English Primrose*.

As a window plant it is particularly valuable, as it does not suffer so much for the want of full light as some plants do. To be sure it does best with an abundance of light; but some things must have this or nothing comes of them. Then the flowers are so fragrant. In my taste the

EDITORIAL.

STRAWBERRY CULTURE IN SOUTHERN PENNSYLVANIA.

In a recent letter from the West by the Editor of this magazine, the remark was made to the effect that the hill system of growing Strawberries did not seem to be much of a success, except in the hands of Knox and a few cultivators in Southern Pennsylvania. Of course there are many ways of growing Strawberries in hills; one may be a very good way, and the other a very bad one, and yet both properly be called *a*, if not *the* hill system. Cutting off the runners and leaving nothing but the hills to bear fruit, is a very good principle in itself; and this way may be called a hill system. It is known that as soon as a runner takes root in the soil, the crown is injured, and cutting away these runners is therefore a good principle. But there is something more. The ground must be kept cool to produce the best results; and cutting away the runners exposes the surface to the heating action of the sun, and is therefore an injury. So far we see that what we gain by the cutting of runners, we lose by the exposure; and we are just where we were before. Indeed we lose, as we have had the cutting and clearing to do with no advantage.

Here are two distinct principles, operating one against another; and we see from this how one who proposes to himself to grow Strawberries on the "everlasting principles of science" is just as likely to get wrong as one who goes blundering along "just as his grandfather did." In all things we must use *common sense*. That is to say, go by no one principle alone, but *generalize* from all. Then in this matter we shall see that to have the best results from cutting off strawberry runners *a mulch to shade the ground must go with it*.

It is generally here that we have noticed hill cultivation to fail. Even where mulch is used there are so many ways of doing it. Even in Southern Pennsylvania and Northern Maryland, which we excepted when speaking of those who did not do as Knox did, the system is scarcely like the famous Pittsburg plan. As one can learn something from every new plan, or variation of an old plan, we give the practice of one of the most successful we know in this particular region. The notes we made were brief, and we may not

have them full in all respects, but still we think enough to be understood.

The tract we have in view, is in Carroll Co., Md., near the village of Westminster, on Parr's Ridge of the Blue Mountains, and is probably 1000 feet above tide water. The plot comprised about ten acres, had a north west exposure similar to Knox's, and is a light loam on a clay sub-soil. The land was manured before planting, at the rate of about 20 horse loads to the acre. The plants have plenty of room,—the rows being 36 and the plants about 18 inches apart when they are first set. In March and April the plants are thoroughly cleaned by a cultivator, after which rye straw at the rate of one ton to the acre is spread between the rows. The runners are kept cut off during the summer season with sharp hoes, and nothing allowed to grow but the great bushy hills. The kinds chiefly relied on, were Russell, Downer, Green Prolific and Agriculturist.

By this simple system 507 bushels were gathered from about three and a half acres; which were all sent to one firm in Baltimore, bringing the owner even in the past abundant season \$4 per bushel, less about 12 cents per bushel freight.

All around through this section of country strawberries are grown very successfully; and the best growers are those who practice some such a hill system as the one described. It will be seen that one of its essential is, that the shading of the surface and runner cutting should go together.

We are fully satisfied that any one who will practice this system judiciously will never want to return to the bed or any other system.

A COOL SURFACE FOR FRUIT TREES.

As is well known to our readers, we have long labored to show that to have healthy fruit trees the fibrous roots must be kept *near the surface, cool and dark*. No one has ever disputed these premises. We have further labored to show that all the popular fruit-growing doctrines are opposed to these premises, and *must be wrong*. Then we have proposed something better than the prevailing modes,—either grow short grass, mulch, branch low, or plant close. For all this we have been roundly abused. "Does the *Gardener's Monthly* pretend to know better than all

the great men who lived centuries ago?" We do not intend to be drawn into any such side issues, but shall continue to show, as occasion offers, the inconsistencies of those whose practice is opposite to the principles they profess; and to insist that herein lie most of the failures wherever they do exist.

Indeed, the sore point seems to be just here,—for the very ones who attack us the most abusively, usually furnish the best facts against themselves, and would probably see them as we do, only for this natural disposition to oppose. One of the most distinguished of this class of writers has recently written a paper to show how terribly we are leading the people astray by our teachings, and then goes on to give the figures which,—supposing that he treats his figures more fairly than he treats his opponents—show a profitable Pear orchard. It so happens that we have seen this orchard, and it is one of the best arguments in favor of what we teach. The trees are closely planted, and moderately low branched, so that the roots are admirably shaded and cool; and this excellent condition of things is still more aided by frequent mulchings of seaweed, which is easily obtained. No grass is required, because the conditions we ask for are better obtained without it.

No better instance of the value of our teachings could be obtained any where than from the Pear orchard of Hovey & Co.; and it is only in accordance with our theory of the love of opposition, that the recent vulgar attack on us in the *Boston Journal of Horticulture*, can be accounted for.

VARIETIES OF AUCUBA.

All the plants of Aucuba Japonica were from one female plant, introduced from Japan many years ago, until comparatively recently a male plant was introduced, since which the plant has been able to bear berries in great abundance,—and from these a great number of varieties have been raised.

In this section of Pennsylvania the plants have proved hardy only in very sheltered situations. Possibly some of these new varieties may be found hardier. There are some pretty green leaved forms amongst the new ones, and green-leaved plants are generally hardier than the variegated ones. At any rate, our Southern readers should look out for these Aucubas. They are just the thing for their grounds.

SKIMMIA JAPONICA.

This beautiful plant has dark evergreen leaves similar to the Daphne, and is succeeded by large red holly-like berries, something like the berries of *Daphne Mezereum*. The earlier attempts to introduce it to our hardy collections failed, chiefly, we believe, because it was found not to endure our summer suns.

We see by recent English accounts that it is found to thrive very well in the shade, and is likely to become one of their most useful decorative plants when so employed. It is possible that if we were to try it in such situations we might be more testing. It is well worth testing again.

RAISING GOOSEBERRIES.

In a recent number, in answer to a correspondent, we gave the plan by which Gooseberries are successfully raised about Philadelphia. We referred then to the American varieties—chiefly Houghton's seedling. But the foreign varieties do not grow even by this plan. Wherever we have seen them, and however grown, they always mildew.

Now it is so clear why they fail, and it is so easy to apply the remedy, that we are very much surprised that no one understands it. The Gooseberry is essentially a mountain plant, and besides this, it is as warm a lover of "sylvan shades" as the most poetic amongst us. This wood loving character makes a very rich soil as necessary to success, as the other two points. So that to have first class Gooseberries we must have a rich soil, a cool soil, and a shady situation. Yet we put them in a warm sunny spot, and getting nothing but disease, decide that "foreign Gooseberries cannot be grown in the United States."

It is, we know, very hard for most of us who have been educated in different climates to alter our practices to suit another. We put in Gooseberries as we always put them in, and as they always brought good results. If they will not do here under that system, it seems hardly worth while to study out another one. Indeed, we have too many things requiring our attention, that unless anything is likely "to pay," we can hardly spare the time to experiment. Hence, though gardening is rather a fine art than a source of profit; and though enjoyment, and not dollars, is its first aim; we have to depend more than any other country on the

commercial men, for our progress in practical knowledge.

Now, let the market fruit grower take this matter in hand. There is "money" in the English Gooseberry. It is not an aristocratic fruit, although we have seen a Queen smack her royal lips over a "Roaring Lion." Yet with the average man and woman, it is one of the most popular fruits. As a general market fruit there is no doubt of a ready sale, at high prices, for all that can be raised.

Here is a prize well worth contending for. Only comply with the conditions, and the victory is easy. Places where cool soil and partial shade can be found, already exist in many grounds. Where these are not naturally, they can be easily made. Grapes and Gooseberries, for instance, may be grown together. The vines may be so trained as to afford a partial shade, and the Gooseberries grown under them. Besides this, many ways will suggest themselves to an ingenious mind. Only remember that shade must not include dry soil. And the roots of trees dry ground very much, so that such shade will not do. The shade must be afforded by rocks or hills, walls or fence, arbors, or the spreading branches of trees over spaces where roots do not extend.

At one time it was granted that we could not raise Seedling Pines in America. They were mountain plants, generally just as our Gooseberry. But it came to be understood that the little shade required could be easily given. Then came the Illinois Douglas with his acres of brush and arbore. The thing was done, and the money came in—and what is more important to

us, a great lesson was learned of value to all Americans.

Now let the same thing be done for the Gooseberry. Let another Douglass come, that we may sound his praises, and eat his fruit.

WINDOW FLOWERS.

It is much to be regretted that window flowers are not so often seen as they once were. It cannot be that the taste for beauty is declining. It is rather that the arrangements of modern housekeeping make flowers in the way of convenience. Yet why not make windows to suit? The demands of modern society are all well in their way, but surely they need not be so imperatively exclusive as to banish all floral adornments from our tasteful houses.

The introduction of heaters had some influence in driving away flowers from our sitting rooms, but coal as gas light has been a worse enemy, yet these can be easily kept in place. Bay windows now often have an inside enclosure of glass,—making a kind of cabinet, as it were, and in this the plants grow to perfection. But this arrangement is not essential. A friend, whose window is at all times gay with blossoms, and whose success is the envy of all the neighbors, has nothing but a broad window sill, and she has the window curtains so arranged that they fall between the room and the plants. The lace curtains are down day and night, and the damask over only at night. This seems entirely sufficient to prevent injury from gas and dry air—no plants can possibly be healthier than hers are.

SCRAPS AND QUERIES.

NAMES OF PLANTS—S. S. T., *Carbon Cliff, Ill.*—Your kindness and patience in replying to correspondents, emboldens me to ask information on some points in which I am much interested. Is there any difficulty in starting the seeds of the *Erythrina*, or *Cactus*, and how old must they be before they blossom? Will you give the names of the enclosed specimens, and tell me if there is a plant by the name of *Caryomolis*, and what the name of the scarlet-coned cedar?

My husband suggests that I have asked too many questions already. If so, I trust you will

pardon me, as they do not arise from an idle curiosity, but an earnest wish for information. Permit me to express the great profit and pleasure I receive from the pages of the *Gardener's Monthly*. I consider it worth twice the price.

[No 1 is *Glechoma*, or *Nepeta hederacea*. It is a native of Europe, where it is called "Ground Ivy." It is also naturalized to some extent in this country. As a basket plant it has few superiors, as it requires so little light in order to do well.

No. 2 is *Euonymus Japonicus*, the "Japan Evergreen Burningbush." In the Northern

States it is only hardy on the north side of buildings, or some other place shaded from the sun in winter; but it must have the full light in summer. In the South it makes beautiful ornamental hedges. It has small green flowers when old, scarcely visible without close looking for; when the green capsules open they disclose reddish seeds, which in the South gives additional interest to the plant.

Erythrina seeds, when they have once got dry, do not vegetate freely. The best plan is to soak them in cold water a few days before sowing. Cactus seeds grow very easily in sandy soil, kept moist by putting a piece of glass over the flower pot, instead of regular waterings, which are apt to rot the young plants.

Perhaps *Coreopsis* is the plant by the name mentioned. The scarlet-coned cedar is not known by that name, but some varieties of the Norway Spruce have beautiful rosy purple young cones when flowering in spring, for which they are highly esteemed.

We are always glad to have such questions as these, as what one wants to know often proves of value to hundred of others. We shall be pleased to receive your further inquiries at any time.]

EARLY PEAS—When "we were boys," and for a hundred years previously, new Peas made their appearance occasionally, warranted to be "earlier than any others known." Between twenty-five and thirty years ago, the "Early six weeks" was thought to be a prodigy, and we all know how many "earlier ones" have been raised since that day. The Royal Horticultural Society now says that "*Sutton's Ringleader* is the earliest of all." It would be interesting to know how much less than six weeks we have gained in twenty-five years.

TRANSPLANTING LARGE TREES.—J. W. W., *Hyde Park, Duchess Co., N. Y.*, writes:—"I am a new subscriber to the *Gardener's Monthly*, and note with great interest your statement in the January number in regard to transplanting large trees. If you will send me such back numbers as contain the articles you refer to, with the price, I will forward the latter."

[In view of the great number of new subscribers this year, and the importance of the subject, instead of referring to our past issues as requested, we thought it might have a more gen-

eral interest to repeat the recommendations we have before given in regard to transplanting large trees.

In the first place, we may say that the practice has been very successful in this vicinity. Trees 25 feet high and two feet in circumference having been moved during the last ten years by different people, and trees of different kinds have been moved, and in all cases have done as well as trees but two or three years old. There is, however, one point which has been learned by experience since we first wrote, and that is that a half starved tree from poor soil, is not so successful as one that has been pretty well taken care of, and in pretty good ground.

The best time to move large trees is about three weeks before the fall of the leaf, or about two weeks before the bursting of the leaves in spring; in the former case, operations may be continued until a week after the fall, and in the last, until the leaves have been once fully expanded.

A rope is fixed to the top of the tree, and operations commenced by digging eight feet from the base of the tree, a circle two feet wide and at least two feet deep. It is difficult to make workmen do this, as if they "see no roots" they don't want to dig there. Then use digging forks to undermine the ball. When undermined, fork out the soil from the horizontal face of the ball. This, also, is very difficult to get workmen to do. They will work at the horizontal face before the ball is undermined, which injures the roots, and doubles the labor. The earth must rather fall away than be dug away, and this the undermining permits. It is also very difficult to keep laborers deep enough under the ball. The operation is very much shortened in time, by keeping deep. In ordinary soil, two men will have such a large tree as we have described, ready for removal at the most in half a day.

For removal a pair of wheels and a pole, or a common two-wheeled cart is necessary. It is backed up against the tree, the shafts set up against the trunk, and the top of the trunk and the top of the shaft or pole lashed firmly together. If the roots are very wide—as sometimes they will under this treatment be twelve feet—six feet will have to be elevated to keep from dragging on the ground. This, of course, can be done by side-boards on the cart, across which a heavy board is placed, protected by a mat from rubbing the bark off the stem. The rope being pulled, the tree and shafts come down together, and the tree is about exactly balanced on the

two wheels; and the cart with the tree drawn away hind side before, to the place where it is wanted. A couple of poles are placed across the new hole, on which the tree is set up, so as to give a chance to unlash from the shafts, then the cart taken away, the poles one by one taken out from under the roots, and the tree falls straight down into the hole prepared for it. Previously, if the head is found very heavy, and the roots proportionately light, some is cut away. The soil is pounded in around the roots with a narrow rammer. So important is this part of the operation, that usually two men are kept to ram in earth for every one who fills it in. Properly done, no staking of the tree will be required. There are some other little details, which any one will readily perceive, but we think the main principles can be understood. It is simply to get all the roots, and rapidly before they dry; and ramming in so hard and firmly again that the trees cannot blow over, but are often firmer than when they grew naturally before; and to do this work at a time when the roots are very active, so that evaporation from the stems and branches will not be going on without new rootlets to supply the waste. It is new rootlets or fibres which do this business. Old, hard roots do little of this.

A circle sixteen feet wide, and two feet deep, seems a big task; but by keeping deep, out of the way of the roots, it is astonishing how quickly it is performed. Germantown men, who now understand it, will often contract to move a hundred such trees for about \$10 each.

On this system we have seen the following trees very successfully moved, and probably others which do not now occur to us: American Chestnut, Red Oak, Horse Chestnut, Larch (only when done in September), Norway Maple, Sugar Maple, Silver Maple, Red Maple, Catalpa, Willows, Poplars, Elms, Plane trees, Norway Spruce, White Pine, Hemlock Spruce, Arborvitæ, English Ash, American Ash and Birch. The Tulip Poplar, and English Oak we have seen done, but not with the same good results.

If there is anything not yet quite clear, we shall be glad to give more information where obscure.]

DRAWING VISITORS.—America has been credited with the best genius for "dodges" to draw full "houses" to fairs and other exhibitions; but the capital plan disclosed in the following paragraph, seems to show that England

is following rapidly behind us. The *Gardener's Chronicle* says:

"At the meeting of the Royal Horticultural Society on Tuesday last, Mr. Bateman announced that he would give a prize of £5 for the best collection of cut flowers of varieties of *Cattleyas*, indigenous in cool countries, with the stipulation that the flowers were to become the property of the Society, for distribution amongst the ladies present on the day of competition, and which was fixed for the first meeting of the Society in 1871."

NUMBER OF GRAPES IN A VINERY.—Many good grape growers in England are tending to the opinion that one vine allowed to fill one house with its branches, is more favorable to success than the general practice of having a number. The *Gardener's Monthly* has always advocated this view.

OPUNTIA RAFINESQUI.—P., Alton, Ill.—"I have noticed recently a plate of this plant in an English work, which has long Pear-shaped joints. I send you a specimen from our town, which you see is round. Are there many species of hardy Cactus, and have they got the true one in Europe?"

[*Opuntia Rafinesqui* is very variable. Indeed, it is not unlikely that it is a mere variety of *O. vulgaris*. The seeds of both are exactly alike. There are many species of hardy Cacti, but only a few, we believe, under culture. Around Ottawa, Ill., the *O. Rafinesqui* is an abominable pest. These fronds are intermediate between round and pyriform.]

TRANSPLANTING LOCUSTS.—An Old Subscriber, Morristown, N. J.—"I had sown on the 11th of May last two pounds of yellow Locust seeds; first soaking them for 8 hours in water 130°, which caused four-fifths of them to soften and swell.

I then rolled them in Farmer's Plaster, and sowed them immediately. The seeds grew in a few days, and made a rapid growth during the summer. The greater part of the plants are between three and four feet high, and pretty close in the rows. I mean to transplant them into nursery rows next April, and what I want to know is, would you recommend me to head them down close after transplanting, so as to get good clean stems. Should I wait till the roots

would be better established, the spring following, or would they do as well not headed down?"

[We should head them down to about two inches from the ground at once after transplanting.]

GUNPOWDER DOGWOOD.—It appears that the Dogwood Charcoal, which brings about \$50 per ton for the wood in Liverpool for making the finer kinds of gunpowder, is not from a Dogwood at all, but from a Buckthorn—*Rhamnus frangula*. Our Carolina Buckthorn is nearly like the European one, and might do as well. At any rate, at this high price, it might pay to grow the species itself for our own uses.

SHIRLEY HIBBERD, of the *Gardener's Weekly*, and well known to American readers as the author of "Homes of Taste," in which aquariums, and other floral devices for beautifying our dwellings were first brought prominently to notice, has been engaged by our contemporary, the *Horticulturist*, as associate editor and foreign correspondent.

We are glad to hear that Mr. Hibberd will thus in a measure become identified with American gardening literature.

PATRONS OF HUSBANDRY.—We have before us the address of Mr. Wm. Saunders, master of the National Grange of the Patrons of Husbandry, at its third annual session. He thus defines its objects:

"To increase the products of the earth by increasing the knowledge of the producer, is the basis of our structure; to learn and apply the revelations of science, so far as relates to the various products of the vegetable world, and to diffuse the truths and general principles of the science and art of agriculture, are ultimate objects of our organization. We freely avail ourselves of the valuable results of scientific investigations in establishing principles (which, although sometimes difficult of discovery, are always of easy application when properly understood) and seek to disseminate knowledge upon every subject that bears upon the increase of the productions and wealth of the nation."

And in reference to some objections made against the order, said:

"The ceremony of initiation of members has, as was anticipated, been objected to by a few persons; but we are already well convinced that the efficient discipline necessary to secure permanent organization could not be attained by any other means, thus completely realizing the only object that suggested its adoption, and it meets the warm approval of all those who have experienced the transitory existence of rural clubs and societies, and who recognize in our simple

but efficient rules elements of success based upon a solid and lasting foundation."

It was our privilege to have the whole details of this Society placed in our hands before its organization, and though we could give it no aid, through all of our efforts being demanded in other directions we may say that our knowledge of its objects enables us to offer it our best wishes for success.

HAND CULTIVATORS.—George G., York, Pa., writes: "Noticing the advertisement of Thomas Smithy's hand and broad cast weeder, I would like to know what you think of it.

The hand culture of corn is so very expensive that if it will do all that is claimed for it, it must be of great benefit to all farmers."

[We do not know to what advertisement our correspondent refers. We suppose he wishes a hand cultivator that will work in a garden amongst corn. We have never found anything satisfactory. We have tried many inventions, but all have proved too laborious for one man to work, and we have had to fall back on the hoe.

So far as Horse Cultivators are concerned, we have since our last received one from Mr. F. L. Perry, which appears to be a very good thing. The thin tongues loosen the soil, and a sharp bladed hoe follows, and easily cuts up the weeds and levels the surface.]

SITUATIONS.—Again as spring opens we are flooded with inquiries about gardeners, foremen, nursery hands, &c.,—although we have so repeatedly declined to do anything. If we had but a few score a year, we should be very glad to aid parties in getting together. But every reader thinks that he is our only friend, and that we might at least help him. Alas! We have too many friends! We would if we could, but this answering hundreds of letters a year is impossible.

RASPBERRIES.—"Subscriber," Scipioville, N. Y., says: "I have seen no recommendation of Clarke except by those who have it for sale. Am I safe in planting it for a market fruit? What are the merits of the Philadelphia and Mammoth Cluster?"

[The Clarke is of the European race of Raspberries. They seem more liable to suffer from disease and improper culture in our climate, than the native kinds, and are not so reliable for mar-

ket purposes as the two last named, which are of the native race. These are not quite as good flavored, but not being so particular, are more certain to bear profitable crops.]

KNIGHT'S MONARCH PEAR still continues to be one of the most popular of English winter dessert Pears.

ORCHIDEOUS PLANTS.—These costly and most singularly beautiful plants, continue to receive great attention from English plant growers, and are amongst the chief attractions of their exhibitions.

AMATEUR AND MARKET FRUITS.—*B. D., Lansing, Michigan.*—"I notice that fruits are frequently divided into those adapted to amateur and to culture for market. What is the difference?"

[Some fruits require more knowledge and skill to bring to perfection than others—these are the amateur fruits. The man who markets fruits has to employ very rough laborers to work his plantations. He cannot oversee himself every detail, he has therefore to grow kinds which have the happy faculty of taking care of themselves. It often happens that these are not often as good as those which require more knowledge and skill. Hence a "market fruit" simply means a kind *profitable to grow*, and an "amateur fruit" one extra good, when one knows how to grow it.]

GOLDEN VARIETIES.—It is a singular fact that while plants with silver variegations are much more tender than those with the normal green leaves, the golden ones are quite as hardy as their originals. This was first suggested to us by Mr. Harris, gardener to H. H. Hunnewell, Esq., at Boston, in the case of the Golden Yew, *Taxus elegantissima*. We think there are some exceptions, but yet it is true of ten enough to make it remarkable.

GROUNDS OF GEO. MERRITT, ESQ., AT TARRYTOWN, N. Y.—In the history of Gardening in all countries fine places rise and fall, as in the history of nations; and the United States is no exception. A few years ago one of the very finest places near Philadelphia was Mr. Camac's. Now it is cut up into streets and thickly built over. Yet from time to time other fine places rise, some of them far excelling those of the olden time.

Of this class is the new residence of Mr. Geo.

Merritt, on the beautiful Hudson, between Tarrytown and Irvington. Mr. M. was well known in former times in the leading dry goods circles of New York, but of late years has chiefly busied himself in the pleasures of rural life. His estate embraces about six hundred acres, most of which will be devoted to improved farming. The pleasure grounds, will be, when completed, about fifty acres, which is being laid out in the highest style of landscape gardening art. Over one hundred men are continually employed on it. Three years ago he commenced the erection of a magnificent range of greenhouses, which are now nearly completed. Over eighty thousand dollars have already been spent on them. These are chiefly for flowers, and a new range entirely for fruit is in contemplation.

The present houses are built somewhat in the form of a T. The main leg of the letter, as it were, being a palm house 25 feet high. A beautiful fountain is to be in the centre of this house, and the upper portion of the main limb terminates in an immense glass dome, from the top of which one of the most magnificent prospects on the Hudson can be obtained. The cross position of this imaginary T is a lean to line, and the two pendant portions of the letter, two beautiful curvilinear span roofed houses, one of which is entirely devoted to Camellias. The houses of Messrs. Kelley at Rhinebeck, and of Mr. Aspinwall, are famous for their extent; but these of Mr. Merritt go a long way beyond.

The gardener in charge, we have not yet had the pleasure to meet. He is from France, and exhibits great knowledge of the gardening art.

BOYLE'S TEMPERATURE ALARM.—This is one of the most ingenious contrivances we have seen for some time. By the application of a column of mercury to a dial finger, and a connection by wire in one's bed room, an alarm bell is struck whenever the temperature rises or falls between a certain fixed range. The gardener may now go to bed with a certainty that his houses will not take fire or go down towards freezing without his instantly knowing about it. The same arrangement could be put into public halls or anywhere where there was any danger. We regard it as one of the best inventions, next to the thermometer, that has been found for many years.

Mr. Boyle was once a gardener, and well known at Detroit, when in the fine establishment of Mr. Hubbard; and we are proud for the honor of the "craft" that so much genius as this contrivance shows, should have originated in it.

Mr. Peter Henderson, we observe, always alive to "gardening for profit," has been amongst the first to introduce it into his houses.

OMISSION.—By an oversight of the Printer, a portion of the article on "A Good White Winter Flower" was omitted under the head of communications. The entire article will appear next month.

BOOKS, CATALOGUES, & C.

REPORT OF THE COMMISSIONER OF AGRICULTURE FOR 1863.

The Commissioner announces, that in the present volume he has endeavored to confine himself to statistics on such matters as would not come in contact with the regular agricultural journals of the country; but we doubt whether anything that appears a year after date would ever seriously interfere with anything published by private enterprise. For this, however, Mr. Capron is not to blame. It must be a source of annoyance to him that the national authorities are so late with the appearance of what would otherwise be a very useful work. As it is, the facts mostly become known before they are published, and the issue is by so much stale and unprofitable.

We notice that some thirty thousand plants have been distributed, and many new varieties of seeds of vegetables, grasses, and farm articles. The recipients, Mr. Capron tells us, are requested to report the results; but with the exception of a few responses on wheat, oats and clover, *nothing* has been received as to the great mass of matter distributed. We think this ought not to be. Persons who send articles free to the department, are of course entitled to similar courtesies; but anything distributed to other people, should be *only* on the condition that they report the result for publication in the annual report.

Mr. Capron has a very difficult position to fill. It is very easy to suggest improvements, but only those behind the scenes know the difficulties of executing them. That with so many obstacles, so much improvement should be accomplished as these reports indicate, is much to the credit of the Department.

HARRISON'S FLAVORING EXTRACTS.

This is a catalogue of the various perfumes sold by the firm of A. W. Harrison, a name which, as Recording Secretary of the Pennsylvania Horticultural Society, is widely known. One of the best essays ever read before the Pennsylvania Horticultural Society was by this gentleman, describing his visit to the flower farms of Europe, and giving explanations of the various ways of extracting perfumes from flowers.

Many useful facts and receipts are given in this pretty pamphlet, which is forgratuitous circulation amongst ladies of taste and refinement.

Catalogue of DUDLEY & MERRILL, Geneva, N. Y.

So many catalogues are almost copies one of another, that we look in vain for any item of special interest that will command the attention of the readers of this department of the magazine. This one not only contains descriptions of a great number of fruit and ornamental trees grown by the proprietors, but has a very interesting chapter on profits and methods of fruit culture.

To give an idea of the matter of this department of the catalogue, we give the following about the culture of the Pear:

"On several accounts the Pear possesses advantages over other fruits. The first is its delicious quality, as found in the finest varieties; its buttery or melting texture, and its delicious and perfumed flavor. In this respect it greatly excels the apple, and keeps nearly as well. Even the peach is scarcely superior, while it keeps only two or three days.

But the pear, like everything highly desirable and valuable, cannot be had without attention, labor and skill. There are only a few exceptions to this general rule. The relative prices of the apple and pear being about as one to ten, show at the same time the superior value of the latter, and the greater skill required to bring it to perfection.

The market value of fine pears is a good indication or measure of the amount of attention which this fruit deserves. The following are a few examples: Dr. C. W. Grant, Newburgh, gathered four hundred specimens from a tree of the Flemish Beauty, only eight years planted, which he sold for \$30, or 13 cents each. T. G. Yeomans, of Walworth, N. Y., sold in 1837, nearly his entire crop of one variety, at 12 cents each by the barrel. In 1860, one barrel, filled with one hundred and twenty-five pears, sold for \$35 62, and eleven barrels for \$315. Very large specimens of Angouleme have, in some instances, retailed at a dollar each. Austin Pinney, of Clarkston, N. Y., sold some of his pears at 10 cents each; or \$18 per bushel. J. Stickney, of Boston, obtained for his crop of the Louise Bonne de Jersey, in 1856, \$10 per bushel. John Gordon, of Brighton, near Boston, sold Bartlett pears raised with the highest cultivation, with skillful management in preparing for market, for \$19 per bushel, while good ones, with more common care, brought only \$3 per bushel. Ellwanger & Barry, of Rochester, sold their best well ripened Glout Morceau pears in winter, at \$13 per bushel, and others have done the same. This sort has often borne at eight or ten years of age, under good culture.

Orchards of standard pears being in most cases but recently set out, have not yet given full results. But as dwarf pears come quickly into bearing, we have

already many examples of their great success. Among them are the following:

T. R. Austin, near Boston, (says Col. Wilder,) set out 500 dwarf pears about twelve years since. They commenced bearing in about three years, and have borne regular and abundant crops ever since. An account was kept of the sales from them for the past six years, which amounted to \$3,498. They occupy about an acre.

W. P. Townsend, of Lockport, had about an acre of dwarf pears of different sorts, that bore the fifth year from the bud, forty-one barrels, selling at \$10 per barrel, or \$410 for the acre.

T. G. Yeomans, of Walworth, N. Y., has large plantations of dwarfs about twelve years old. They are ten feet apart, and are cultivated, and the soil kept perfectly clean by two horses walking abreast, at less cost than a corn crop requires. They have yielded from a half bushel to a bushel per tree, and have sold from \$14 to \$35 per barrel—which is at the rate of \$2,000 and upward per acre.

One Bartlett pear tree belonging to Philo Bronson yielded from thirty to fifty dollars worth of fruit for a series of years, when fruit was only worth one-half its present value.

A Geneva fruit buyer paid \$90 for the fruit of three pear trees, and picked the fruit and marketed it himself. The trees stood on the farm now owned by J. O. Sheldon.

F. A. Stow, of Troy, N. Y., sent to New York in the fall of 1863, two barrels of Seckel pears. The purchasers returned him \$40 a barrel, and at the same time sending him word that if he had any more such fruit they would give him \$60 per barrel for it.

In 1857, a firm in Geneva came into possession of a place having ten or twelve pear trees which had been planted four years. The fruit brought five dollars per tree per year for several years on the average, when fruit was much lower than it now is.

At a recent meeting of the Geneva Horticultural Society, on the subject of profit, Mr. Graves said that Mr. John Morse, of Cayuga, had been planting pear trees for twenty-five years, regarding it more profitable than any other fruit or farm crop. He had known of pears selling at \$65 per barrel. Mr. Thomas Smith said that his brother sold two barrels of Beurre Clairgeau for \$80 last year.

In all these cases the best cultivation was given to the dwarf, in connection with the yearly application of good stable manure. It may be laid down as an unalterable rule that dwarf pears cannot live, much less flourish, unless a complete system of broadcast cultivation is given. Digging small circles around the foot of each tree is wholly insufficient. The roots of thrifty trees soon spread over the whole surface, and the whole surface must, therefore, be kept clean and mellow."

To be sure there are many who would say they never obtained such results as these, and that they exhibit only one side of the picture, which is true; but yet we hold that what has been done can be done again, and generally *might* be done. It is rather ignorance than impossibility which makes too many failures—not all, of course—but still too many.

NURSERY CATALOGUES.—Our nurserymen seem particularly alive to business. Our table

is covered with lists, and many of them are so meritorious, and do so much credit to American business men, that we should like to notice them more in detail. But amongst so much to commend, we can only spare space to enumerate them. They are as valuable in many respects as the current horticultural literature of the day; and as they are given freely to all who ask, it will be every one's interest to send and get them.

We have them from Downer & Sons, Fairview, Ky.; Clarke & Sons, London; R. Douglas & Sons, Waukegan, Ill.; Vilmorin, Andrieux & Co., Paris, France; N. H. Lindley, Bridgeport, Conn.; E. H. Krelage & Son, Haarlem, Holland; J. Draper, Worcester, Mass.; Jas. Stewart, Memphis, Tenn.; T. Hubbard & Co., Fredonia, N. Y.; Nursery Association, Chambersburg, Pa.; Sleeper & Sons, Oxford, Ind.; Henderson & Fleming, No. 67, Nassau St., N. Y.; C. Platz & Sons, Erfurt, Prussia; A. C. Fish, Rochester, N. Y.; E. Y. Teas, Richmond, Ind.; H. Nette, Quedlinburg, Prussia; W. H. Mann & Co., Gilman, Ill.; J. Kift, West Chester, Pa.; Bronson & Herendeen, Geneva, N. Y.; C. Black, Hightstown, N. J.; Otto & Achelis, West Chester, Pa.; Robert Halliday, No. 14 North Charles street, Baltimore; Lukens Peirce, Coatesville, Pa.; J. Manning, Reading, Mass.; J. Ransom, Hammon, N. J.; Hasbrouck & Bushnell, Iona, N. Y.; S. S. Jackson & Co., Cincinnati, Ohio; J. Charlton, Rochester, N. Y.; A. Bryant jr., Princeton, Ill.; Storrs, Harri-son & Co., Painesville, Ohio; Calkins & Brooks; Bricksburgh, N. J.; Hubbard & Davis, Wayne, Michigan; Wm. Sumner, Pomaria, S. C.; Eugene Verdier, Paris, France; Kemp & Kerr, Denton, Md.; J. Adams, Springfield, Mass.; Ellwanger & Barry, Rochester, N. Y.; E. Benary, Erfurt, Prussia; W. Wilson, Astoria, L. I.; J. Thorburn & Co., No. 15 John street, N. Y.; R. Buist, 67th street and Darby Road, Phila.; W. F. Heikes, Dayton, Ohio; J. McAdams, Mt. Pleasant Nurseries, Westmoreland county, N. Y.; J. Knox, Pittsburgh, Pa.; T. C. Maxwell & Bros., Geneva, N. Y.; R. H. Allen, 119 Water street, N. Y.; Jas. Vick, Rochester, N. Y.; J. E. Ennis & Co., Lyons, Iowa; Isidore Bush & Son, Jefferson Co., Mo.; Frost & Co., Rochester, N. Y.; Hargis & Summer, Quincy, Ill.; J. Vestals, Cambridge City, Ind.; J. G. Booth & Co., Hamburg; F. Meech, Albany, N. Y.; Crane & Co., No. 449 Broad street, Newark, N. J.; Graves, Selover, Willard & Co., Geneva, N. Y.; Julien Monnier & Co., near Angers, France; A. Hance & Son, Red Bank, N. J.; Piffner & Marquardt, Delaware, Ohio; J. Saul, Washt'n, D. C.; Hoopes, Bro. & Thomas, West Chester, Pa.; Wm. Bull, London, England; Anthony Waterer near Woking Surrey, England; L. Menand, Albany, N. Y.; Peter Smith & Co., Hamburg; H. A. Dreer, No. 714 Chestnut street Philadelphia.

NEW AND RARE PLANTS.

NEW PLANTS FOR 1870.—We see in Europe seeds of many new plants offered for the first time, many of which, however, are not likely to be of much interest to Americans. Some things, however, promise to be of value. Great improvement seems to have been made in "Columbines." These plants, botanically *Aquilegias*, seem to have been broken up into as many varieties as Phloxes.

The "Cow Parsnips" of Europe have recently received attention as decorative plants, on account of their large leaves. One of these which grows along our own river banks, *HERACLEUM LANATUM*, is really more striking than the European species, but has not yet got into cultivation. Amongst the novelties in Europe this year is an ally of these Cow Parsnips, called *CALISSEA DAHURICA*. The leaves are represented as six feet long by four wide, which would produce a novel effect on a lawn. The stem grows about eight feet high. The head of the flowers is very much like that of the wild Carrot, only it is nearly two feet across.

New CANNAS are spoken of, but whether of the early summer flowering kinds, or merely leaf bearers, does not appear. Probably the latter.

Amongst Ten week Stocks, pure blue varieties are announced.

In Chrysanthemums, quilled dwarfs have been produced in the Pompon class.

The old "Dusty Miller," or *CINERARIA MARI-TIMA*, the silvery leaves of which have rendered it so valuable in the modern fashion of foliage masses, has had a new species of similar tint, but with the leaves nearly entire, brought in company with it. It is called *CINERARIA ACANTHIFOLIA*.

Our own American tree, *CORNUS NUTTALLII*, which ever since it was figured in Michaux's *Sylva* every lover of hardy trees has desired to possess, is at least offered in Europe at one dollar an ounce. It is much more ornamental than the common Dogwood of our woods, *Cornus florida*.

A Blue Lantana-like plant from Mexico, *CORNUTIA PYRIMIDATA* is also well spoken of. All of this class, to which the verbena also belongs, make good summer blooming plants for our climate.

Chinese Pinks in great variety seem also very popular.

One of the grandest things seems to be a new *DICENTRA* from California, which it is said will be a great rival to our popular hardy plant *Dicentra spectabilis*. This new candidate is named *D. CHRYSANTHA*. Seeds are cheap—100 for about 75 cts.

A hardy cucumber-like plant from the north of China, with round golden fruit like oranges, and leaves like grape vines, called *EOPEPON VITIFOLIUS*, is highly praised. But in our climate we have already some cucurbitaceous plants which somewhat resemble this.

HEPATICA ANGULOSA, with flowers blue, and as large as a silver dollar, will please all who like these early spring flowers.

Some new "Morning Glories" of the *Ipomœa* section, are offered at 25 cts. a seed.

A rose colored variety of the scarlet Flax will be a good novelty.

PARANEPHELIUS UNIFLORUS.—The London *Journal of Horticulture* figures and describes this plant recently introduced from Peru into England. The plant is herbaceous, having no stem, and is something in habit like the old *Gazania rigens*, to which same natural order of composites the plant belongs. The flower is about the same size as the *Gazania*, and of similar golden yellow color; but the leaves are broad and more thistle-like. It makes a good winter bloomer.

ERANTHEMUM ANDERSONI, Mast.—Owing to an unfortunate oversight, the plant exhibited by Mr. Bull under the garden or provisional title of *E. elegans* was described botanically under that name, in forgetfulness that the appellation in question had been given to a very different plant by Robert Brown. We hasten to repair the error, and avail ourselves of the opportunity of associating Dr. Anderson's name with the plant, as no one has done so much towards elucidating the difficult family of Acanthaceæ as the energetic Superintendent of the Calcutta Garden. Moreover, it now appears from the appended letter of Mr. Prestoe, Superintendent of the Botanical Garden of Trinidad, which clears up the history of the plant to a great extent, that Dr. Anderson had himself recognized the plant as new, though we are not aware that he has anywhere

published it. Mr. Prestoe's letter is as follows:

"I observed in your number of Nov. 28, 1868, a notice of an *Eranthemum*, exhibited by one of the Floral Committees at South Kensington, and as there is some doubt expressed as to the habitat there given it, I am induced to give, for general information, what knowledge of its history I possess. In the latter part of 1866 we received, by one of the East Indians coming here annually, from the Calcutta Botanic Gardens, two of Ward's cases of plants, amongst which were two that have since proved very fine *Eranthemums*. The plants in these cases were numbered, but I did not receive the lists of them till a year or more later, the first list sent never having reached its destination. By these I found that one of the *Eranthemums*, the subject of this letter, was marked E. sp., by which I was induced to regard it as a distinct new species, the more so from knowing that Dr. Anderson had given the family to which it belongs special attention. Meanwhile the plant became extensively propa-

gated here, and in June, 1867, we supplied a plant of it, amongst a general collection, to Judge Fitzgerald of this island, on the eve of his departure for England; and this plant, no doubt, is the one, or the parent of those, now in Mr. Bull's possession. On my visit to England last year, I was surprised to find that this plant, so far as I could learn, had not yet found its way into home collections. I thereupon communicated with my assistant here to have it, as well as the species mentioned above, sent to Kew, and I now have the satisfaction of knowing that a case containing, amongst other things, those two beautiful plants, arrived in Southampton about the time of my departure from England in October last. Both species make a magnificent display in our flower gardens. At this moment both species in our garden are massed over with flowers, the weather of late having been very dry, and therefore particularly favorable for their development.—*G. Chronicle*.

NEW AND RARE FRUITS.

KOCHER APPLE.—From Messrs. Engle & Bro. This is a beautiful fruit. It is as large as the best King of Tompkins Co., rather more oval, with a more slender stem, and lighter flesh, which, indeed, is nearly white. In the specimen before us the flavor was not quite equal to the popular variety we have named; but that might be exceptional. It must certainly become a popular variety.

MOUNT VERNON PEAR.—We are glad to see that Mr. Little is making an effort to introduce this fine fruit. In addition to our note about it last fall, we see that it has the endorsement of Messrs. Wilder, Hyde, Hooker, Frost, Elliott, Downing, and other well known Pomologists.

THE RASCHE APPLE.—This is a new variety, originating in Missouri, with Mr. W. Rasche. The tree is said to be a strong grower, productive and hardy, and the fruit juicy, mild, sub-acid, rich and high flavored.—*Carolina Farmer*.

THE ARCHDUKE CHERRY.—This is the best of the Duke Cherries, and should be more widely disseminated wherever the cherry will succeed, which, unfortunately, is not generally in the South. It is very erect and upright in habit of growth, vigorous and hardy. The fruit is large, very dark shining red; flesh, light red, slightly adhering to the pit; sub-acid, rich and very good. Considered very valuable in the West and Southwest.—*Carolina Farmer*.

HUTCHINGS APPLE.—Origin unknown. It is thus described in the *Journal of Agriculture*: "Size, when well grown, and thin on the tree, large to very large; form, roundish, being a little broader than long; skin smooth, color greenish yellow ground, striped and splashed with two shades of red, quite dark in the sun, so it looks blotched with the dark red, with bronze around the stem; stem, slender; cavity, narrow, rather deep; calyx, small, nearly closed; basin, very narrow and shallow; flesh, white, very tender, juicy, mild sub-acid, not rich, but very pleasant; core, large; seeds, large, long, dark brown; season, November to March, and if well taken

care of, to April; tree, hardy (very much so), healthy, moderate grower, of rather diverging habit, not very strong wood, rather brittle, bearing annually the largest crop of any apple I know of from Kentucky.

PITMASTON DUCHESSE PEAR, is the name of a new variety introduced in England by Mr. Williams, of Pitmaston. It resembles Marie Louise, and was, as we understand the paragraph in the *London Cottage Gardener*, raised from Duchesse d'Angouleme.

INTELLIGENCE.

LITHOSPERMUM FRUTICOSUM.—This is a superb plant for hanging baskets, or, indeed, for any place where a pendulous-habited plant is required. I filled two hanging baskets with it for our conservatory a month ago; it was then in full flower, and has continued so ever since, and promises to keep so for at least a month longer. I grew it with the intention of using it for spring gardening out of doors, but I was so struck last season with the habit of the plant for this work, and its intensely deep blue flowers, that I could not for the life of me risk it to battle in the open air with the cold winds of March. And right glad am I that I did not do so, for we require a number of plants of that description for drawing-room and other indoor decorations, and at this season of the year there is nothing to beat it. Its color is rare and rich, and when suspended, so effective that I can with confidence recommend it to all who require plants of the kind. It is one of those hardy gems of which we gardeners, as a body, know but too little. The young growth roots freely in spring, and in a compost of leaf-soil, peat, and silver-sand, it grows very fast. In summer I grow it out of doors under a south wall, and winter it in the front of the orchard-house. It does not need this protection in the winter, as it is quite hardy. I give shelter because it flowers earlier than it would do if left out of doors.—*London Journal of Horticulture*.

been ripe since September, and was shown in so good condition as to receive a special certificate.

VICOMTESSE HERICART DE THURY STRAWBERRY.—Assuming that the above and the Prince Imperial are the same, I may observe that I tested the latter carefully this year, both under glass and in the open ground, side by side with Keen's Seedling. Admitting that it is quite as early, more even in size, and firmer in flesh than Keen's, it always proved deficient in sweetness; so much so, that I purpose adhering to Keen's.

For home consumption, where large quantities are required by persons whose palate is not highly educated, I recommend Empress Eugenie; for fastidious tastes, the British Queen, Rivers' Eliza, and Myatt's Filbert Pine. To these, as a late variety, not to be eaten till almost black, the old Downton, somewhat acidulated, perhaps, but very rich, should be added.—*G. S., in London Journal of Horticulture*.

VARIETIES OF IVY.—Evergreen Ivies are much grown for parlor gardens in England. At a recent meeting of the Royal Horticultural Society, the *London Journal of Horticulture* says:—On this occasion prizes were offered for the best nine Ivies in pots. There were three exhibitors—namely, Mr. C. Turner, of Slough; Mr. William Paul, of Waltham Cross; and Messrs. E. G. Henderson & Son, of St. John's Wood. Mr. Turner sent very neatly trained plants, beautifully clothed with foliage, trained for the most part as tall cones. The kinds were *Hedera Helix* major, with small silver-veined leaves; *H. H.* minor with still smaller leaves, but otherwise resembling those of the preceding, *H. marmorata* minor, with small leaves marbled with pale yellow; *H. elegantissima*, with small

AN OLD GRAPE VINE.—At a recent meeting of the Royal Horticultural Society of England, Mr. Fowler, of Harewood, sent a dish of Muscat of Alexandria Grapes from an old vine eighty years old, now existing in the garden there, and which annually bears between four hundred and five hundred bunches. The fruit exhibited had

foliage is regularly bordered with rose color and yellow; *H. grandifolia arborescens*, a large-leaved tree Ivy; *H. grandifolia latifolia maculata*, the leaves extensively mottled and splashed with cream yellow; *H. algeriensis*, with large, vigorous, pale green leaves; *H. leida*, with beautiful, shining, dark green leaves, but bright green near the principal veins; and *H. lobata major*, with very distinctly lobed foliage. Mr. W. Paul had *H. latifolia maculata*; *H. Rægneriana*, a most valuable dark-leaved kind; *Rægneriana arborescens*, having a stem like a tree; *H. japonica*, the leaves variously edged and marked with white or pale cream color; *H. canariensis aurea*, with some of the leaves entirely yellow, others with but a small patch of green, whilst others, again, are entirely green, but a charming and most effective variety; *H. algeriensis variegata*, with white variegated foliage; *H. rhombea variegata*, the leaves small, with a narrow white edging; *H. arborescens baccata lutea*, the berries still in a green state; and *H. taurica*, a very neat small-leaved kind. From Messrs. E. G. Henderson, came *H. Helix rhomboidea*, *H. algeriensis arborea*, *H. japonica variegata*, *H. canariensis marmorata*; *H. dentata*, apparently of vigorous growth, and having large leaves; *arborescens alba lutescens*, a fine yellow variegated kind with rather small leaves; *arborescens latifolia striata*, with dark green foliage, blotched, splashed, or marked with broken of golden yellow; *H. Helix marginata alba robusta*, edged more or less broadly with cream white; and *H. Helix minor marmorata elegans*, with minute marbled leaves tinted with red.

BARNES' THEORY OF CULTURE.—This great horticulturist has studied to good practical purpose the profound theory of the correlation of force. He has impressed upon the soil the great art of giving, and yet increasing. Cropping is the cultural weight that imparts stability to the earth's inexhaustible storehouses of growing power. The one thing to guard against is an unclothed surface. Give the earth work to do, and it will never flinch from its accomplishments. Mr. Barnes' first efforts go to secure mass or bulk of soil. He does not believe in the motive power of light or small bodies; he goes for the impetus acquired by mass. Hence no mere surface of the earth suffices for him. Down, down, deeper down, is his watchword, until he obtains a tilth to work with of from 3 to 5 feet

in depth. This is his grand storehouse of cultural force, from which his momentum for propelling vegetation is obtained; this is his mass of earth that works with such might and energy in the manufacture of such an astonishing bulk of sweet and crisp vegetable matter. We have seen the first elements of his productive energy, we will now try to unearth his second agency—heat. How does he enlist this transcendent power into his service? Chiefly in three ways. First, by conserving the heat already in the ground; by freely admitting fresh supplies, and by creating new sources of heat within the earth itself. Thorough drainage is the great conservative power of heat; it bars up the widest doors, through which it is ever ready to escape. A dry surface or well drained mass of earth stops the loss of heat by evaporation, and it is well known to every one that evaporation is the most powerful known robber of heat. By allowing the water a free passage downwards instead of upwards the greatest amount of heat is preserved in the earth with the minimum loss. Next to thorough drainage, a covered surface is the best means of keeping heat in the ground. The crops arrest the escape of warmth, and return a large portion of the heat back to the earth. They erect a barrier against the energy of radiation outside. I advance another step here with more diffidence. It is this, that life itself—the mere vitality of vegetation—becomes a source of heat to the earth. The temperature of plants has often been observed to be considerably higher than the surrounding air or earth. Thus probably every living plant becomes a conservator of the heat of the earth of lesser or greater power, or a generating centre of heat. Another mode of increasing the temperature of the earth is by the free admission of heat, by textural management, and a frequent inversion of the surface soil. A friable soil may heat more gradually, but it retains the warmth longer than one of the opposite character, and if fresh surfaces are continually turned up, and exposed fully to the sun, and the heat so acquired be persistently turned in, it is astonishing, how much may thus be done to raise the temperature of the ground.

The last plan to be noted is the direct creation of heat within the earth itself. This is accomplished by the addition of decomposing matter. It is too much the fashion to look upon such materials as possessing only an enriching or manurial value. The term stimulant would, how-

ever, be more correctly descriptive of their powers. It is by the performance of quickening functions that the worth of many so-called manures ought to be measured, and they stimulate less by their feeding properties than by their heating powers. Wherever decomposing matter and air meet together, either within the earth or out of it, heat is the product of their union. Thus every atom of matter undergoing decomposition becomes a centre of warmth. Infinitesimally small as the heating power of each centre may be in itself, yet their powerful aggregate strength makes up for their individual littleness; and their combined energy may be, and I believe is, sufficiently potent very sensibly to raise the temperature of the earth.—*Cor. of Gardener's Chronicle.*

HARDY CLIMBERS.—The following account of some climbers, or, as they are called in the United States, vines, is from the *London Journal of Horticulture and Cottage Gardener*:

Akebia quinata.—Evergreen twiner. Flowers lilac pink, in spring and early in summer. Propagated by division of the roots, and cuttings of the half-ripened shoots in sand on a gentle hotbed. It requires a south wall, and peat and sandy loam.

Ampelopsis hederacea (Virginian Creeper).—The most vigorous of all climbers, succeeding on any aspect, and excellent for covering trellises and rustic work, thriving where many other climbers will not do so, especially on a north aspect. The flowers are inconspicuous, but the foliage is a full compensation for any deficiency of flowering. It gives a close mantling to any building or object, the leaves dying off a bright purplish red. It will grow in any kind of soil, but succeeds best when encouraged with good, rich, well stirred loam. It is deciduous, and increased by layerings and cuttings of the ripened shoots. Being of vigorous growth, it is very suitable for covering high walls and buildings with unfavorable aspects. *A. quinquefolia* does not differ from *A. hederacea*.

A. japonica.—A new Virginian Creeper, of a compact steady habit, the leaves being broad, ovate-oblong, and in autumn assuming a bright red tint, in this respect surpassing *A. hederacea*. It will doubtless prove as hardy as the preceding.

A. Veitchii.—Foliage smaller than that of *A. hederacea*; the leaves are sometimes entire and

occasionally thrice-divided, and are very close and dense; color green, shaded with purple. Very fine for walls with north aspect and rustic work of all kinds, being very hardy; and on account of its peculiar colored foliage and young shoots, which are quite purple, it is worthy of greater attention than it has yet received. It is the best climber for planting against walls where nailing cannot be practised, as it needs no training, but clings to any building with the greatest tenacity. The leaves turn red in autumn before falling.

Aristolochia siphon.—Foliage bold, not unlike Rægner's Ivy; flowers yellow and brown, produced in July. It is suitable for walls with east or west aspects, and for verandas and summer-houses, but in warm situations only. Sandy loam is the most suitable soil. Deciduous. Propagated by division of the roots or layers, either in spring or autumn. 30 feet.

Atragene Americana.—Deciduous, succeeding in any common soil. Fine for rustic work. flowers purple, in July. 15 feet. *A. Austriaca*.—Flowers brown and yellow, July. 8 to 10 feet. *A. Siberica*.—whitish yellow flowers. July. 12 feet. Increased by seeds sown in sandy soil in a frame, the seedlings being pricked off when large enough, and gradually hardened off; also by layers in autumn, or by cuttings under a hand-glass or in gentle heat, either in spring or summer.

Berberidopsis corallina.—Evergreen, not exactly a climber, being only a sub-scandent. Flowers fine deep red, in clusters of two or three, on long pedicels. It is but little known, and appears very hardy.

Bignonia grandiflora.—Free growing climber with orange-red flowers produced in summer, but it requires a south wall. The foliage is bold and handsome. As the flowers are produced on the short shoots which proceed from the wood of the previous year, care must be taken to have the latter well ripened by thorough exposure, keeping the shoots moderately thin and rather closely nailed or tied up.

Bignonia radicans.—Flowers orange, in July. Vigorous, and similar to the preceding, but not so good, though it is hardier. There is a better colored variety called *superba*. This and the preceding are deciduous, and only suitable for trellises, against walls, verandas, and other warm situations. They are increased by cuttings of the shoots, and by pieces of the roots in gentle heat.

Bignonia capreolata.—Flowers red. In warm situations, against a south or west wall, it is very ornamental.

Caprifolium flavum.—Yellow. 10 feet. Deciduous. Trellises in warm situations. *C. Douglasii*.—Orange. 20 feet. Deciduous. Pillars, arbors, and rustic work. *C. periclymenum*.—Yellow; 20 feet; the Woodbine so fine for covering rustic trellises, arbors, or trunks of trees. June. It and the varieties are deciduous. *Periclymenum belgium*, or Dutch, larger and earlier flowering, June, 20 feet; *Periclymenum serotinum* (late Dutch), yellow and red, 20 feet, June; *Periclymenum quercifolium*, yellow and red flowers. June. There is a variegated variety of this. Except the first, all are fine for pillars, arches, and covering all kinds of rustic work, but they should have open situations, for though they may grow, they do not flower freely on north aspects or in the shade. Against walls they are smothered with aphids.

C. sempervirens.—Evergreen, also its varieties *Brownii*, *floribunda*, and *Youngii*, all with scarlet flowers. Fine for trellises, verandas, and poles, the flowers being long and trumpet-shaped. Rather light soil is most suitable.

The *Caprifoliums* are increased by cuttings of the ripened shoots in autumn, in a shady border, covering them with a hand-glass or inserting them under a frame. Layering in autumn when the leaves are falling is the most certain method of propagation.

Celastrus scandens.—Deciduous. Flowers yellow, in May or June. 15 feet. Seeds in a hot-bed in spring.

Clematises.—*Cærulea grandiflora*, pale azure blue, 10 feet; *flammula*, white, 20 feet, sweet-scented; *florida*, white, 10 feet; and its double variety, white, tinged with green; *bicolor* (*Sieboldi*), straw, puce and green centre; *Fortunei*, large, double, white; *hybrida splendida*, deep violet, stamens green; *Jackmanni*, violet purple, centre veined, stamens light green; *lanuginosa*, lavender, large; *lanuginosa candida*, large, white; *lanuginosa pallida*, pale lavender; *montana*, white, stamens green; *montana grandiflora*, larger than the species, flowers white; *Helena*, large, semi-double, white; *Louisa*, white, with purple-tipped stamens; *Sophia*, mauve, centre of petals straw-colored, stamens tipped with chocolate; there is a double variety of this similar in color; *rubro-violacea*, maroon, shaded

reddish violet, stamens pale green; *Standishii*, deep bluish violet, *Viticella*, purplish violet; and its variety *multiflex* with double flowers of the same color; *Viticella atropurpurea*, deep purplish red; *venosa*, reddish purple, veined crimson, light centre, stamens chocolate; *Vitalba*, or *Traveler's Joy*, white. This is the most hardy, and quickly covers any surface.

All the *Clematises* are fast-growing and free-blooming, indispensable for covering trellises, walls, rustic, and all kinds of ornamental wire-work. Their rich and varied colored flowers, many of them large and sweet-scented, render them particularly desirable. All are deciduous. Propagation is effected by cuttings of the firm side shoots in summer, inserted in sand under a hand-glass or frame, keeping them shaded and close; or by layers in September. A light, rich, well drained soil is most suitable.

Holboellia (Stauntonia) latifolia.—Evergreen, having fragrant green flowers in spring. It requires a south wall, with protection in severe weather, and peat and sandy loam. Increased by cuttings of the half ripened young shoots in sand under a bell-glass, in a gentle heat.

Jasminum officinale (White Sweet Jasmine).—Deciduous; valued on account of its white sweet-scented flowers. The variety *grandiflorum* only differs from it in having larger flowers. *Jasminum officinale foliis aureis* has golden variegated leaves. There is a kind with white variation, but very scarce, and a double variety, which I believe is not in cultivation. It is remarkable that a bud of the variegated Jasmine taking on the common or green, will frequently cause the whole of the plant to become variegated. To thrive well, these varieties require south-east, south, or south-west aspects, not succeeding on trellises in the open ground. The flowers are produced in July.

J. fruticans.—Deciduous. Flowers yellow; only suitable for low walls. July.

J. nudiflorum.—Deciduous. Yellow flowers, produced in mid-winter. It is so hardy, that in Yorkshire, 500 feet above the sea level, it grows vigorously, and blooms most profusely on a north wall in January. It attains a height of 15 feet, perhaps more, and is a rapid grower. It is very well adapted for forcing or the greenhouse, and succeeds on any aspect out of doors. The flowers are produced before the leaves. It ought to have a place in every garden.

The *Jasmines* are propagated by cuttings of the shoots after these become firm, inserted un-

der a hand-glass in sandy soil; also by suckers and layers in autumn. Good, rich, light soil, with a little leaf mould or peat, is the most suitable.

Lardizabala bitermata.—Evergreen, of rapid growth, and having purple flowers. It requires a south wall, or warm situation. It flowers in winter, and in severe weather needs protection. Soil, sandy loam and peat. Propagated by cuttings of the half ripened young shoots, under a bell-glass in gentle heat.

Lycium barbarum.—Deciduous. Flowers violet, in June. *L. Europæum*.—Deciduous. Flowers lilac, in June, followed by yellow fruit. *L. africanum*.—Deciduous. Violet flowers, in June, succeeded by pretty fruit, of which birds are very fond.

The *Lyciums* are suitable for walls, trellises, or arbors, being of a free, rambling, half-shrubby nature. They are propagated by cuttings of the ripened shoots in autumn or spring, in a frame or under a hand-glass.

Periploca græca.—A deciduous twiner of rapid growth, and quickly covering an arbor or wall. The flowers are brown, and appear in July.

Cuttings in summer under a hand-glass, or layers in autumn.

Vitis vinifera apiifolia.—Leaves crumpled or Parsley-like; its only merit.

Vitis heterophylla variegata.—White and red variegation on a green ground, pretty. The vites are suitable for south walls or trellises in warm situations. Light rich soil. Cuttings of the ripe wood, or eyes, in a mild hotbed early in spring.

Wisteria (Glycine) sinensis. Deciduous, and of free growth; foliage light brownish green, flowers light purplish blue, in clusters not unlike bunches of Grapes. A south aspect is most suitable, though it will succeed on east and west walls and other warm situations. It is increased by cuttings of the young shoots when their wood is becoming firm, inserted in sand under a hand-glass or in a frame. Layers, however, form the best mode of propagation. If a young well ripened shoot, the longer the better, layered its full length in autumn, almost every eye will form a plant or shoot, which will be well ripened and rooted by the following autumn. The variety *alba* has white flowers.

HORTICULTURAL NOTICES.

FRUIT GROWER'S SOCIETY OF PENNSYLVANIA.

The recent meeting at Lancaster, was one of the most successful ever held, and the amount of business crowded into two short days, was so great, that one scarcely knows how to make any report that is consistent with the brief pages of a monthly magazine. Over 200 persons were present during the session, and from seventy-five to a hundred on the average were continually in the room. A very full report will be soon published by the Society, which will, alone, do the matter justice.

The collection of fruits was particularly fine. We have seen nothing like it, at any winter meeting of any society. One of the most interesting fruits was the Penn. Apple. This is supposed to be a "sport" from the Baldwin, from which it is certainly distinct, though much resembling it. It is better than any of the many specimens of Baldwin exhibited. The tree has a more compact head than the original Baldwin.

The Koecher, noticed in another page, was remarkably fine. It is said to be from a seedling found in a wood at Little York, Pa., by Dr. Koezier. A very fine apple is the York Imperial. On this occasion a sweet variety was exhibited. It is a little rougher on the surface than regular forms of York Imperial. A variety from Germany, called the Glass Apple, was on exhibition, said to keep "almost" forever. The "Imperial Russett" exhibited, was a noble fruit, somewhat resembling the old fashioned Ribston Pippin. The Nickajack, a Southern Apple, was shown. It seems to do very well in Pennsylvania. The Cooper's market (Wrigley of other places), was in very superior condition. Some apple vary much. We noticed White Doctors with rich rosy cheeks, such as we never saw them in Eastern Penna., and Tewkesbury Winter Blush in many varied forms. Pears were not numerous, though some from Mr. Brinton of Christiana, and from John Perkins of Moorestown, attracted much attention. President Hoopes' address

is without doubt, one of the most valuable addresses ever read at a Pomological meeting; it not only goes into a full history of the fungoid diseases of fruit trees, giving all that is known of the subject down to the present time, but contains many original observations of his own. He also gave a good account of his recent visit to California, from a Pomological pen. One thing was made clear from his remarks, that though California could compete with the East in the size of fruits, it will never probably equal the East in the quality of the article.

Mr. Wm. Saunders, formerly of the State, and an honorary member of the Society, read a very instructive essay on pruning. Mr. Saunders is gradually growing to the belief of most observing horticulturists, that though we cannot by any means do without pruning, the evils it brings with it are nearly as much as the gain, and that the best rule in pruning, is to do as little of it as possible. Mr. Jacob Stauffer read an instructive essay on the importance of a study of principles to the fruit culturist,—and Mr. Rathvon gave an essay on the insects injurious to fruit culture, which contained many points of novel interest. All these essays will be published in the Society's proceedings.

The discussions of fruit matters were very varied. An attempt to fix a fruit list for Pennsylvania failed. The general fruit committee condensed answers received to their questions, and the result was that Early Harvest was a "best" apple named. A great many present spoke against it, and on motion, it was by a very strong vote rejected. Another had to be proposed, and numerous favorites with individuals were proposed in its place. Pirmate seemed to have most favorites, and it was voted to put it in the place of Early Harvest, which was done. A sharp-eared individual didn't hear many approving voices, and expressed a belief that Early Harvest would get more votes than Pirmate. The votes were reconsidered, and taken by numbers, and there was really found by this test a majority for Early Harvest. Our reporter has this memorandum amongst his notes, "lists by Societies made in open meeting, are not worth shucks;" "shucks" being probably some worthless thing. Again societies are easily ruled. They see things generally only as it momentarily impresses them. At the discussion in grape culture, in order to bring the matter to a vote, a gentleman moved that the atmosphere of Pennsylvania was unfavorable to grape culture; which was carried, unani-

mously. But the next day, after some more remarks had been made on the grape question, this was reconsidered, and another motion adopted in its stead, which implied that that the climate of Pennsylvania was as good for grape culture as that of any other State.

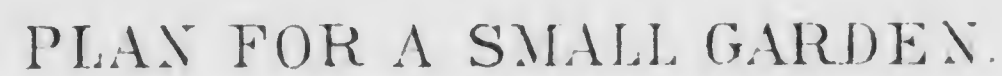
The Dwarf Pear was ably discussed, some had bad luck, and others tolerably good success. The rooting of the Pear stock was thought an evil by some, while others thought it a great advantage. On the whole we thought Dwarf Pears were getting better understood, and rather gaining in favor, though slowly. The Pear blight seems to be dying out in the State,—at least there were not the dolorous tales told as in former times. Keeping of fruits brought out very much that was valuable. It seemed clear from many views given, that Pears require a rather warmer and moisture atmosphere to ripen properly than the Apple. This is a very novel point, but the facts were strongly that way. There were also some strong facts brought up to show that not only the future plant from the seed, but the fruit itself is changed by cross fertilization.

Mr. Meehan was down on the programme for a written paper, but apologized by a "multiplication of duties," and made an extemporaneous address instead. There was not much in it; but it produced one of the most interesting discussions ever heard in a horticultural society, as to the rationale of many of the various operations of gardening. The debate occupied about three hours, and was listened to by the convention with marked attention. The gentlemen who engaged in it were Josiah Hoopes, Dr. Seusserott, Prof. Heiges, Wm. Saunders, Dr. Kozier, Casper Hiller, S. H. Purple, Edwin Satterthwaite, Wm. Parry, Dr. Reed, H. M. Engle, Chas. H. Miller, Chas. P. Hays, J. E. Mitchell, A. W. Harrison, Jacob Stauffer, Thos. N. Harvey, and some others.

Resolutions were introduced asking the Legislature to interfere against the vandals who destroy trees, instead of setting telegraph poles a few feet further,—in favor of a State Entomologist, and to ask for an appropriation to defray cost of transactions.

The officers for next year are:

Josiah Hoopes, President; Alexander Harris, of Lancaster, Secretary; Thos. Meehan, Cor. Secretary; Robt. Otto, West Chester, Treasurer, and the next place of meeting was fixed for Chambersburg.



ENGRAVED EXPRESSLY FOR THE GARDENERS MONTHLY

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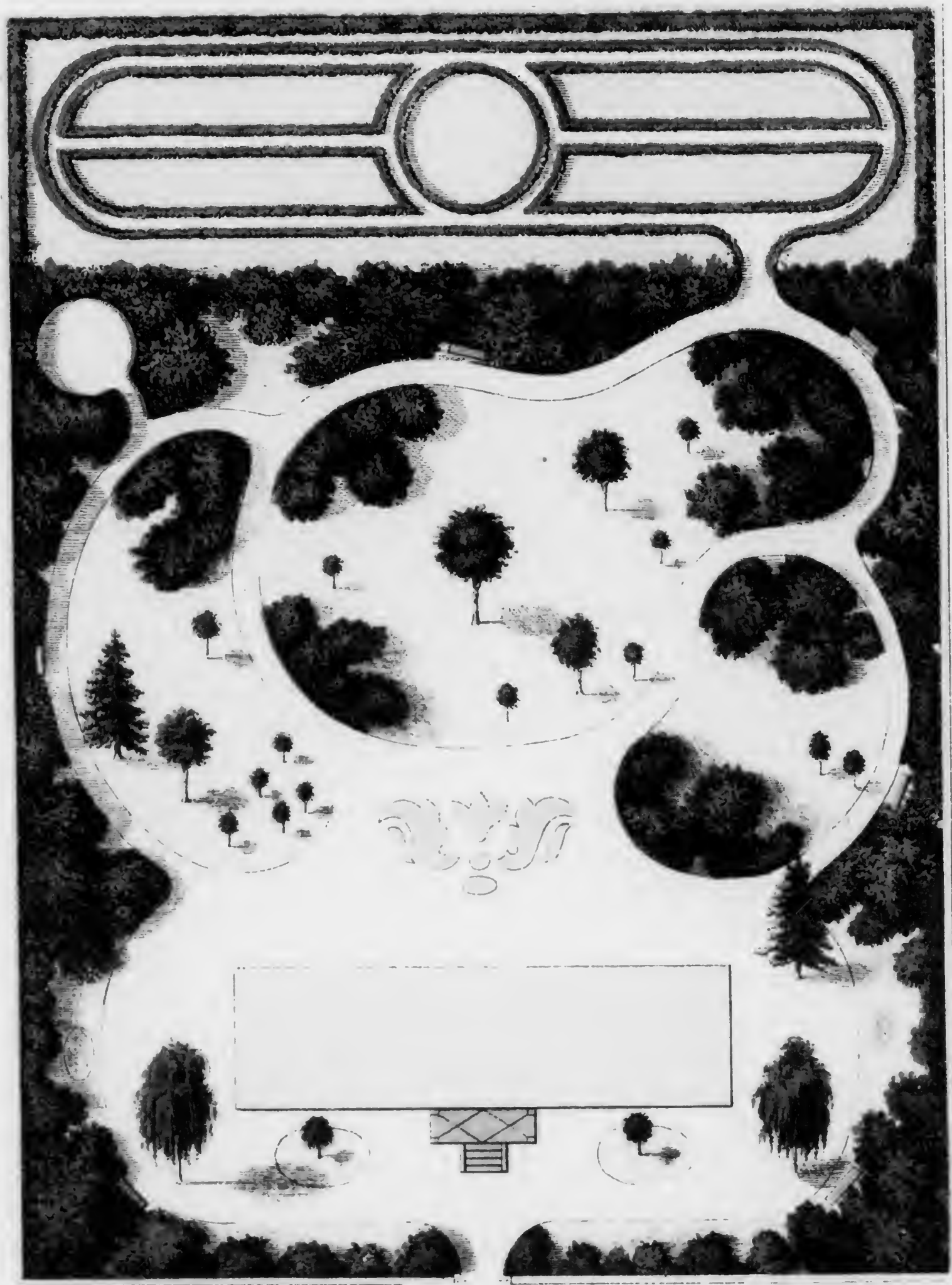
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PUNYA AND APOLLO.

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PLAN FOR A SMALL GARDEN.

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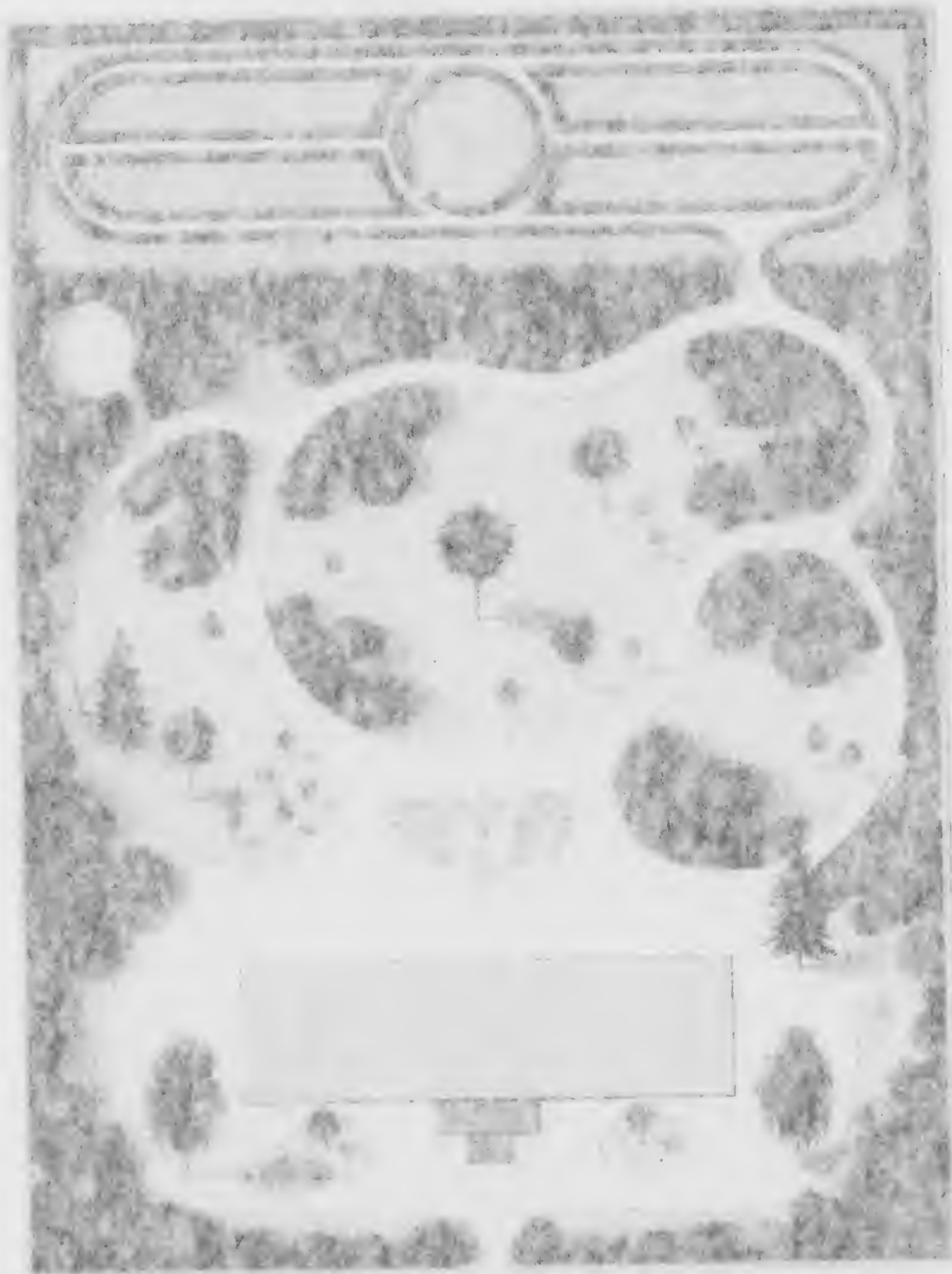
The Gardener's Monthly

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The Gardener's Monthly.

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XII.

APRIL, 1870.

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HINTS FOR APRIL.

FLOWER GARDEN AND PLEASURE GROUNDS.

The most interesting feature of a garden in April, is its lawn; and any efforts to improve its beauty, are never regretted. One of the best ways of keeping up a nice green surface, is by occasional top dressings. There are some weeds which thrive much better than grass in poor soil, and hence when the lawn gets impoverished, these weeds grow better than the grass, and kill it. Encourage the grass, and by so much we discourage the weeds; this should be particularly attended to where lawn mowers are used, as these cutting so often and so close, tend to weaken the plants more than the old scythe system. For all this, these lawn mowers are excellent things; and any one who has much lawn will find profit in getting one. For small places, hand mowers can now be had for less than one hundred dollars, and do the work very well. In old times they were so expensive, and so soon got out of order, that they were not popular. These things are now better arranged. As a top dressing for lawns, salt has been found very good about five bushels to the acre might be tried, and more added another year, if it is found the lawn will bear it. The proper quantity to the acre depends on the soil; sandy soils will take more than heavy ones.

April is a good planting month. There is not much art in planting trees, though it is often much of a mystery. Not to let the roots dry for an instant between taking up and planting, every body knows, but everybody don't do it; in fact everybody deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots; and think all was right,—or heel

in for a day or two, by just throwing a little dirt over the roots. This is a little good; but every body's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days value out of it, and thus he suffers more than if he had done nothing, because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches, very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or at most just "kicked" down. "It is only temporary," very few of the roots, come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day,—everybody satisfied because he sees the roots covered, really worse than if they had been exposed. We have no doubt that more trees are lost from imperfect heeling in than from any other cause whatever. Of course if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

This hint will help us in planting. That is, pound the soil in well about the fibres, so that they may be in close contact with it; or they can not draw in the necessary moisture. Should the trees appear a little dry, or the roots badly mutilated in digging, or have few fibres, cut away the plant according to the severity of the injury. It is scarcely necessary to repeat that for this evaporation reason, it is best to plant trees when the ground is rather dry, because it then powders best in pounding, and gets well in about the roots. Wet ground *plasters*, and leaves large hollows in which roots cannot work.

All trees like manure. The roots grow faster. A cutting even is more likely to do well in rich

than in poor ground. If put on the surface after planting it will do.

We approve of thick planting. Trees grow faster for one another's company, and a place well filled at once, save many years of time to see them grow. Those not wanted after the place has grown some, can be transplanted to other parts of the ground. How to remove large trees successfully we explained last month. Where thick planting is to be adopted, of course care must be taken in locating those permanently to remain.

Evergreens trees are best moved just as the buds begin to burst in Spring. Here, that is the end of this month. The best of all the Evergreen trees is the *Norway Spruce*. Then perhaps the following in order as named:

Hemlock Spruce, American Arborvitæ, White Pine, Silver Fir, Balsam Fir (for deep rich soils), Austrian Pine, Scotch Pine.

Amongst the less known evergreens, the following are very hardy and beautiful: Bhotan Pine, Oriental Spruce, Cephalonian Fir, Nordman Fir, Siberian Fir, Grand Fir (*Picea grandis*), Lawson Cypress, Yellow Cedar (*Thuja borealis*) and *Libocedrus decurrens*. Of the very new introductions in the way of evergreens, we have seen nothing that we feel sure will be very popular.

In your flower-beds, if the plants sickened last year, change the soil. Renovated earth is renewed health to consumptive flowers. Sow Annuals as soon as the ground is warm. Too early sowing and deep covering rots seeds very often. This is frequently the cause of one's seeds being "bad." Prepare flowers in their winter quarters for the summer campaign, by gradually inuring them to the air before setting out finally. Set out when all danger of frost is over. Don't set out a plant with a dry ball; but water well while in the pot an hour or so before.

Of flowering plants which thrive well in our climate, we have a good selection. The Geraniums are amongst the best, although, botanically they are not distinct from Pelargoniums; yet it serves a good purpose to retain the name as a popular designation of an useful class in flower gardening. The Verbena used to be the main reliance for bedding—but the great ravages of the verberna rust, has made it somewhat unreliable; and, although it is indispensable yet, it does not take the front rank as formerly. There are now double varieties; but for flower gardening purposes, double flowers are inferior. These

varieties do not flower as freely as the single ones. This has proved to be the case with the Petunia, the Pansy, and other things, and we suppose the rule will hold good here. The Rose Geraniums flower somewhat steady throughout the year, and are indispensable for their delightful fragrance and elegant foliage.

There are many hot house plants, also, which seem only just to have had their merits, as summer bedding plants, discovered. Of such are Madagascar Periwinkles, Chinese Hibiscus, Torenias, Angelonias, &c. This list might be much added to, and we should be much obliged if our correspondents would, from time to time, let us know of any they find to have merit in this respect.

FRUIT GARDEN.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

In planting dwarf Pears, it is very important to have them on a spot that has a moist sub-soil either naturally, or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly sub-soil, should have a circle dug out two feet deep and two or three feet from the tree. This should be filled up with well enriched soil. If the dwarf Pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth.

Strawberry beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a common recommendation, we do not value a highly manured soil. It should be well trenched or sub-soiled; this we consider of great value.

In rich soils there is too much danger of having more leaves than fruit.

Those who have vineries will have them, at this time of the year, in various stages of growth.

The "extra early" houses will have their fruit ripe; but we suppose most of our readers whom these hints are likely to benefit, will have the crop about coloring as their earliest efforts. It is the critical period, as if any check be experienced by the roots, they will not color well. Hence, great care must be taken to keep the foliage healthy. Sudden bursts of sun on tender foliage, or red spider, are the chief points to guard against. The roots in the outside border also, if the borders have been covered with litter through winter, should be aided by having the covering removed. If, however, any of the litter has decayed, it should be left as a covering to the roots. The outside grape border should never be disturbed by digging. Hundreds of graperies are ruined by this "surface culture." No grape grower of any excellence digs up his vinery borders that we know. The importance of keeping grape roots at the surface is now so well understood, that it is very common for good grape growers to uncover and lift their roots occasionally; and to do this and yet get a first class crop of grapes the same season, is considered by the English journals an eminent achievement. With reference to the coloring of grapes, most good gardeners use the syringe very sparingly, and admit more dry air during this process than at any other period of grape growth.

In late houses, where there is no artificial heat, grapes are often injured by the houses being kept too close. The temperature rises under warm suns, and the buds burst only to be sadly affected by our cold March and April nights. Many try to remedy this by flues; but the best way is to keep on all the air possible to keep down the temperature of the house, and where practicable, the canes may be laid down along the front of the house out of the sun's reach.

In the orchard-house proper, Peaches, Nectarines, Apricots, Plums, Cherries, &c., as they grow must have attention given to pinching back the strong shoots as they push, and taking out altogether those not wanted. The green and black aphids are liable to be troublesome; light doses of tobacco smoke, repeated at two or three days intervals, will keep them well under.

VEGETABLE GARDEN.

Tomatoes, Egg-plants, Peppers, and similar plants, every gardener tries to get as forward as possible. South of Philadelphia they must be out unprotected by the middle of the month.

Here we seldom risk them before May. The same may be said of Sugar Corn, dwarf and Lima Beans, Okra, Squash, Cucumber, and Melons. No "time" can be set for sowing these, except not to sow till the ground has become warm. A few warm days often makes us "feel like gardening," but unless the ground is warmed, the seeds will be very likely to rot. Here we sow about the first week in May. Onions for seed should be sown in rich soil, but very thickly, so as not become larger than marbles. Very far North, where they perfect in one year, this advice, of course, is not intended. A crop of Carrots should be sown the end of April. In moist seasons the earlier crops are liable to run to seed.

Early York Cabbage sown last month, or kept over the winter, must now be planted out, where there is a demand for summer greens; and to meet this want, another crop of spinach may yet be sown.

Lettuce for a second crop of salad, should be sown about the end of the month. The Drum-head Cabbage is usually sown for a summer crop, but the old kinds of Cos Lettuce would, no doubt be found very valuable in rich soils.

Where Brussels Sprouts, Cape Broccoli, and Autumn Cauliflower are desirable, now is the time to sow. They require the same treatment as the general Cabbage crop.

Bean poles may be planted preparatory to sowing the Lima Bean in May. Where bean poles are scarce, two or three hoop poles, set into the ground one foot from each other, and tied together at the top, make as good a pole, and perhaps better.

Dwarf beans should have very warm and deep soil—sow them only 2 inches apart. The Valentine is yet the best early, take it all in all.

Celery, with most families, is an important crop, and should be sown about this period. A very rich, moist spot, that will be shaded from the mid-day April sun, should be chosen,—or box in a frame, by those who have the conveniences.

It is not a good plan to cut all the Asparagus as soon as they appear. A few sprouts should always be left to grow from each, to strengthen the plants.

Much attention has been given of late to varieties of Asparagus. It has been argued that this vegetable will not come true from seed; but like Rhubarb, they can be propagated true only by division of the roots. There is no reason why they may not do as well from seed as Peas or Beans. We hope attention will be given to this.

COMMUNICATIONS.

LETTERS FROM THE PACIFIC COAST.
NO. IV.

SAN FRANCISCO, CAL., Oct. 27th, 1869.

Dear Monthly: Early on the morning of the 23d, in company with a botanical friend,—and to whom, bye-the-bye, I am greatly indebted for his excellent knowledge of Californian plants,—I left the Yo Semite, with the intention of returning to Stockton, by another and more diversified route.

Having obtained the services of a competent guide, and procured an extra horse for our specimens and seeds, we ascended the tortuous, hilly trail that leads to the mountain peaks. It is unnecessary to describe again the fatigue we were forced to undergo during our toilsome march, nor how we were repaid by finding many little plants, fresh to novices like myself. Towards noon we stood on the high peak known as "Inspiration Point," where the valley below was spread out before us, the grandest of panoramas. We were now fully aware how vain are all conjectures. The trees around us of the largest size, were the small shrubs of the morning, whilst those beneath, which we knew by actual measurement to be equally as large, were now seemingly but pigmies in growth. The view was of the most enchanting character,—far as the eye could reach, stretching away for miles, were the mingled hues of Oaks and Pines, relieved by the gray background of granite walls that encircled them in; and over all, the filmy October haze cast a veil of such exquisite tint and purity, and created such a quiet air of serenity, that we felt fascinated to the spot.

The prospect of a long ride, however, urged us forward, and soon we were eagerly examining the plants belonging to the summits of the Sierras. We rode through thickets of *Azalea occidentalis* of Torrey & Gray, closely resembling *A. calendulacea* in growth, but said to produce pure white flowers. Intermingled with these dense masses, were hundreds of *Castanea chrysophylla* of Douglas,—the beautiful Dwarf Chestnut of California. Although but 3 or 4 feet in height, and producing fruit, we were informed that near the coast, it forms quite a large tree. It would doubtless prove hardy in our Eastern States, and I can fully endorse its claims as a desirable ornament to our collections. Upon arriving at

the mountain summit, we again enter the forests of *Abies amabilis* and *A. grandis*, which for many miles constitute the only timber, excepting an occasional clump of the *Pinus contorta*.

At noon, we dismounted at the door of a log hut, and in the dense shade of these trees, enjoyed our lunch with the keenish relish imaginable.

Before starting onward, we endeavored to find a few perfectly ripened seeds. Our host, who was a close observer of nature, (as are all these mountaineers,) informed us, that although this species is annually supplied with a fair crop of cones, it is only in alternate years that it perfects its seed; and such, unfortunately for us, we found to be the case,—the present autumn being the unfertile season. As we passed over one of the highest points, we were surprised to find hillocks of pure gray sand, glistening in many places with handsome specimens of *Obsidian*, a volcanic formation resembling broken scales of black glass bottles. This is hard as steel, and is eagerly sought after by the Indians for tipping their arrow-heads. The trees bordering this route appear larger, if possible, than those near the trail by which we entered the valley. Our record shows the circumference of a few of the larger specimens, to be as follows: *Pinus Lambertiana*, 25½ ft., 24 ft. and 22 ft. *P. ponderosa*, 21 ft. *P. contorta*, 12½ ft. *Abies amabilis*, 23½ ft., 23 ft. and 20 ft., &c., &c.

As night approaches, the chilling air warns us to hasten onward our weary steeds, and amidst the dense foliage of pine and fir, we can scarcely distinguish each other in the gathering gloom. Soon, however, we see the lights at "Clark's Rancho," and amidst the boisterous welcome from several huge dogs, we dismount at the door of this mountain retreat, having rode 24 miles. The long, rambling, one-story frame building, reared in the style of Californian homes generally, proved to us exceedingly inviting; and as we found a roaring hot fire in the main room, our late sense of weariness was quickly dissipated, whilst enjoying the crackling of the great pine logs, and the brilliant cheerful blaze shooting up the wide stone chimney. In the evening, we paid our respects to the pioneer of this region, who had erected a comfortable little cabin in the near vicinity. Ask any man within 50 miles of this spot, no matter what his vo-

cation, if he knows Galen Clark, and the same affirmative answer will be returned. During our visit, the time passed quickly by, conversing on his favorite theme,—the trees by which he was surrounded. To our great delight, he was well informed on all the flora of this region,—not confining his researches to the trees alone, but to the humbler plants as well. The correct nomenclature of each was given with as much aptitude as if by the most finished botanist of our learned societies; and the distinctive characters of each were pointed out with a clearness, only acquired by a daily intercourse with the living specimens themselves. And yet this man, with his vast fund of practical information, made no undue pretensions to knowledge,—living in his plain, simple backwood's style,—unshaven and rough in appearance, but gentle and kind as a child in manner,—his silent household companions, the cones and seeds collected in many a weary trip, laying in careless confusion around him. His state could not possibly have found a more capable, nor yet more conscientious guardian of her trees and valleys, than this same Galen Clark. Loaded with the tangible proofs of his generous hospitality, in the way of specimens and seeds, we left his humble dwelling for a visit to the Sequoia groves, whose reputation has now become world-wide, in their wonderful proportions. During our journey over one of the highest points, our attention was directed to the numerous stems of a gorgeous species of Lily,—the *Lilium Washingtonianum* of Kellogg; and our regret in not seeing it in flower, was only recompensed by collecting a generous quantity of the seeds and bulbs. We were agreeably surprised at finding a species of *Iris* growing abundantly on all the hillsides in this section of country, wherever the soil was dry; and although we used every precaution in packing the rhizomas carefully in tin boxes, they quickly withered and became worthless.

After riding about five miles from Clark's, our guide inquired if we noticed any thing strange in the appearance of the forest, when suddenly our attention was attracted to the tall spires of the Sequoia, extending far above the surrounding vegetation, and soon we were riding amidst immense specimens of this lordly tree. This collection of "Wellingtonias" or "Washingtonias" is known as the "Mariposa Group," and embraced in former times 612 trees, but owing to occasional accidents, the number has been reduced to about 600. The collection is divided into two

well-defined groups, with a few scattering trees of this species between, and are entitled the "Lower Grove" and the "Upper Grove," respectively. Among the very many erroneous statements published in regard to these trees, is, that there are no young plants coming on to perpetuate the species. I may say in refuting this absurd theory, that I saw large quantities of seedlings, of every conceivable size, and that they appeared in as flourishing a condition as any Conifer in the whole range of the Sierra Nevada. After passing several immense specimens, we stop at the "Fallen Monarch," a trunk lying on the ground, and possibly uprooted many years ago.

We clamber up on the top, and standing on what was its base, measure with our tape line to the ground, 22 feet. We then step along its length 150 feet, and at this point the first branch was placed. Beyond this the many fires ignited by Indians have burned the entire top, but evidence is shown by numerous remains, that it was over 300 feet high. At the smaller end of the trunk, the diameter was ten feet and the wood throughout solid and undecayed.

To give an idea of its immense size, I may say that the surface is worn level, and a carriage can readily be driven its entire length, turned at the base, and return with ease. One of the smallest trees in this lower grove, measured 17 feet in circumference, five feet from the ground. A large one close by, was 50 feet around; and numbers of others in the near vicinity quite as large.

I ride my mule inside a hollow tree, turn around with ease, and out again to wonder at its immensity. Leaving this Lower Grove with its enormous specimens in every direction unmeasured, we pass on and take the mountain trail towards the Upper Grove. Midway we stop at the greatest wonder to be seen,—the "Grizzly Giant." It is truly marvellous in size. We step carefully around the base, and count just 31 paces. Measured as high as we could possibly reach by standing on the projecting base, 12 feet above the ground, it was 66½ feet in circumference; 60 feet high the first limb branches out, and is 10 feet in diameter. This tree is supposed to be entirely solid, with the exception of two or three spots burned out of its sides by camp-fires. There are others here as large as the above, but none with such a majestic appearance as this grand old veteran presents. Passing by another large specimen mea-

asuring 77 feet around, with a few smaller ones near at hand, we soon arrived at the Upper Grove. This embraces about 365 trees, in the midst of which is built a cozy little cabin called "Galen's Hospice", where the weary traveller can sit down and rest whilst viewing these astonishing vegetable growths. On the outer edge of this grove, we notice the "Diamond Group," consisting of four large and very handsomely shaped trees. We now step around the base of a number of trunks with the following results: 84 ft., 69 ft., 73 ft., &c., &c. Two immense trees stand close together, one of which is entirely hollow, in fact a mere shell, in which 16 horses with their mounted riders, have stood at one time. We next came to the "Tunnel," a prostrate trunk hollowed out by fire, and which is 42 feet in length; through it we walk erect from end to end. Ten thrifty and very handsome trees stand in a cluster, and are named the "Commissioners." They are from 4 to 8 feet in diameter, respectively. The "Chimney" is a hollow stump 50 feet high, burned out through the centre to the top, and is 32 paces around. An old charred stump lying on the ground, was without the bark 27 feet in diameter. A curious tree of immense size, forks into two distinct growths about 60 feet above the ground, and is called the "Faithful Couple." We measured the thickness of the bark taken from this grove, 20 inches, and which was soft and pliable as cork.

Not having time to visit the "Calaveras Grove," located in Calaveras County, I am indebted to the kindness of a friend for a detailed list of trees composing this collection, and will therefore give a slight sketch of the principal trees, before resuming my narrative. Although fewer in number (93 I think) than the Mariposa Grove, it is nevertheless noted for a few gigantic growths. One of the largest of these which was cut down for an exhibition, was 93 feet in circumference, and over 300 feet high. It was felled by augurs, and required five men working steadily for 25 days to accomplish it. The "Sentinels" are over 300 feet high, and the larger one 23 feet in diameter.

The "Miner's Cabin" is a prostrate tree, 21½ feet in diameter and 319 feet in length. The "Mother" is a grand old tree, with its bark stripped off, but yet measures 78 feet in circumference and 327 feet high. A wonderful sight is the decaying ruin of the "Father of the Forest," which although centuries may have passed since he succumbed to the elements, measures to day, 112 feet in circumference at the base, and 312 in

length, notwithstanding a large portion of the top was evidently broken off in its fall; it is hollow, and a horse and rider can enter for some distance. "Hercules," a grand old tree, was blown down in 1862; it measured 97 feet in circumference and 325 feet long. There are numerous other trees to be seen here of immense size, but the foregoing comprise the largest specimens in the place.

Being anxious to reach "White & Hatch's" (our only stopping place) before night, we were reluctantly obliged to resume our seats in the saddle and return to Clark's, where after partaking of a generous meal prepared from the various mountain game, we once more started on our journey towards civilization. We find nothing at present in the flora to interest us, having already become well acquainted with its trees and plants during our former trip. The remarkable brilliancy of the heavens as seen in this clear mountain air, was indeed a beautiful sight, and aided in keeping up our spirits, when we could no longer enjoy the natural objects of interest surrounding us; and yet we felt exceedingly weary after our ride of 25½ miles.

At White & Hatch's, where we spent the night, extensive saw-mills have been erected, and a large number of laborers were employed converting the immense pine logs into boards and planks.

The following morning we rode over the Foot Hills, where the luxuriant shrubs had formed impenetrable thickets on every side, and we saw for the first time the *Fremontia Californica* of Torrey. This desirable plant when in bloom, is said to be exceedingly attractive; but we found it during the fruiting season, and consequently were unable to judge of its greatest beauty. It forms a large sized shrub about 10 or 12 feet in height, with small densely pubescent leaves, and covered with Hibiscus-like capsules, in fact strongly reminding us of a Malvaceous plant, to which this genus is nearly allied. A shrub evidently belonging to the Rhamnaceae,—possibly *Frangula Californica* of Gray, also attracted our attention, owing to its handsome pubescent leaves and stiff, erect habit of growth. The *Cercis occidentalis* of Torrey is likewise seen here for the first time in our journey, and which we found quite similar to the *C. siliquastrum* of Europe. The leaves are shaped like our *C. Canadensis*, but very much smaller; and the flowers, we were informed, are less in size, but more numerous. The *Ceanothus* family was well repre-

sented by many species, very unlike in general appearance, but all vigorous and beautiful in growth.

At noon we entered the town of Mariposa, a thickly settled place, and in the heart of a considerable mining district. Large Quartz Mills are in successful operation here, and the yield of gold is said to be very remunerative to the Company having the works in charge. The Gulch mining in this region has been abandoned by the original workers, but the Chinese have taken possession and are industriously going over all the old water-courses again, apparently well satisfied with their scanty gleanings.

We now enter the Concord Coach once more, and are soon off over the hills for Stockton, a continuous ride of 70 miles in prospect before us.

We stop at *Oinetas* for supper, an old mining town, with a large portion of its population consisting of Chinese laborers,—and then on, with a motly load of passengers, stowed away in the smallest possible space.

Sick and weary, I have little taste for the rough jokes that are being perpetrated around me; but a smile will occasionally arise, as an old lady, strong in the faith of "Woman's Rights," pre-emptorily orders all cigars thrown out, and indulges in very expressive, although far from polite threats, as a Chinaman encroaches on her share of space. The almost incessant music (?) of a twin pair of juvenile miners on the back seat, drives away all idea of sleep; whilst the passing around of a suspicious looking black bottle, keeps a portion of the passengers at least in a glorious good humor. During the forenoon, the steeples of Stockton are noticed in the distance, and with thankful hearts, we are soon enjoying the society of our traveling companions who had preceded us by another route.

Next morning we enter the cars, bound for San Francisco or in the vernacular of the Golden State, "Frisco," and see very little interesting vegetation on this broad flat country. In one place is a field completely covered with the *Eschscholzia Californica*, which reminded us of Dandelions in our Eastern meadows. Then again, along the water courses are a few scattering trees of the Californian or Mexican Sycamore, (*Platanus racemosa*). Although not very unlike our Eastern species *P. occidentalis*, in general outline and other characters, yet, on close inspection, we perceive its claims to rank as a distinct species. The leaves in this are more

deeply lobed, and of a dark glossy green in color; the fruit hangs in long racemes, occasionally five or six on one stem, and thus differs from our solitary fruiting species. Indeed it reminds one more of the European Sycamore, (*P. orientalis*) than of our own.

We have been anxiously looking for the Red Wood of California, (*Sequoia sempervirens*) but have been disappointed. The lumber however, is everywhere in use, and appears adapted to every purpose; the houses, the fences, the railroad ties, even the furniture, are constructed from this beautiful mahogany colored wood. As we approach the waters of the Bay, the Coast Mountains loom up in the distance, and at their base we can see the myriads of vessels anchored in the harbor of San Francisco.

We now remove our baggage to the commodious steamboat, and soon are crossing over to our destination. Immense flocks of Wild Ducks and various species of water fowls are swimming around in close proximity to us, and as our boat sails through them, we have an excellent opportunity to watch their gambols—now diving below, or sluggishly skimming the surface of the water.

About noon of the 27th, we step on shore, and prepare for sight-seeing in this wonderful Cosmopolitan City.

Sincerely, &c.,
JOSIAH HOOPES.

PEARS IN IOWA.

BY H. M'GREGOR, IOWA.

Your correspondent, J. T. L., M'Gregor, in January No. of the *Monthly*, in enquiring about Pear trees, states that it is very hard to raise any fruit but Siberian Crab Apples, in this part of Iowa. To correct any wrong impressions his statement may create, in regard to the capabilities of this section for raising apples and other fruits, I would merely state that Mr. John Grinnell of this county, has some 400 apple trees in bearing, and took the premium at the Iowa State Fair last fall, for the second best and greatest variety of Apples. The Hon. S. Murdoch of this county, has also several hundred trees in bearing; and there are quite a number of other orchards; but these will do for samples. As to other fruits, there were raised last season in this City, Plums, Cherries, and as fine Pears as one would wish to see.

SOME ILLINOIS PLANTS.

BY J. L. RUSSELL,

Prof. of Botany to Mass. Hort. Society, and Cor. Member
of Illinois State Horticultural Society.

There is a County Society in the State of Mass. known as the Essex Institute, and one of its methods to promote a mere general taste for beautiful scenery, as well as for a study of natural objects, is that of field meetings, excursions in fact to some neighborhood little known to others than the inhabitants, in which the different productions of the animal and vegetable kingdoms are sought. A similar arrangement has been made by a local society in Springfield, of that State, and the floral treasures of the Berkshire hills have been frequently sought and found. Beside the immediate pleasure and profit of this kind of knowledge seeking, the naturalist and more especially the botanist becomes acquainted with sites of lovely plants, and spots where rarer and humbler species may be gathered. The season of the year considered most favorable, is in balmy June, or later in September, or perhaps Early October, uniting thus the Spring beauties yet lingering in woods and on sunny banks, with the glowing and purpling blaze and golden glories of the composite plants in Asters and their kindred species. But who, except hardy and adventurous spirits would essay such excursions in the last days of the faded year, or hope to gather "fresh laurels" in such an enterprise? Yet the remarks, which we present our readers in this paper, were elicited by the writer's receiving from some friends a box of miscellanea of what the distinguished botanist Nuttall used to call "hybernal vestiges" of vegetation, representing, with the exception of the Algæ every department of our Native Flora. To do justice to these dessicated and rude specimens, required a long but a compensating study, and served to open a new field of enquiry on the structure and habits of the seeds of plants, the flowers of which ordinarily looked upon as the most interesting phenomena connected with them, paled in contrast with the beauty of the maturer and consummated portions.

A little expedition of eight persons, ladies and gentlemen, left Ottawa, Ills., on a fine winter's day, for an excursion to a promontory on the Illinois River, known as Buffalo Rock. The traces of a late snow storm were still visible in shaded places, and covered many winter plants from sight. The soil beneath, geologically speaking, consisted of a small rounded gravel or quartzite

sand, and the rock seemed to be an aggregation of the same material. It was graphically described by one of the party as "Sand chiefly and about three teaspoonsful to the acre," just fitted for the *Opuntia Rafinesquii* which grew in a most luxuriant manner, and testified to its excellence by the numerous fruits and ferocious spines which it bore. This plant has been considered but a variety of *O. vulgaris* or common prickly pear, which, strange to say, for a plant with such a penetrating name, is scarcely prickly at all; but Dr. Engelmann in his valuable paper in Pacific R. R. Report, has made it as it should be, a distinct species, the seed itself alone being characteristically distinct, while the straight, grey, single spine suggesting natural pins and the color of the flower confirm his decision. On the surface of this rock grew the compact and crustaceous *Urceolaria scruposa* and parasitical on it grew the yolk of egg-colored *Candelaria* or Candle lichen, so called because it was formerly used to color candles for festive occasions. Generally it is found elsewhere, growing upon old rails, and weather beaten boards, the entire surfaces of the outside of houses near the sea, rendered as bright by it as if artificially painted. *Endocarpon pusillum*, too, nestled in this harsh composite rock, consisting of irregularly shaped, dark brown scales, from the upper surface of which issued minute papillæ indicating when the pretty seeds were lodged in its substance. Then the elegant & fringed *Physcia Chrysophthalma* or Golden Eye hung pendent from dead branches, and the *Parmelia Caparata* spread widely over the surfaces of dead wood and bark, a noble and showy species when found on rocks. The showy *Parmelia* (*P. speciosa*), like some design in chased silver, and the branching lichens (*Cladonias*), some with the tips of the stems dilated into goblets fit for fairy mouths, the dwarf and pungent-tipped *C. uncialis*, the reindeer lichen (*C. rangiferina*), the Elkhorn *Cladonia* and many others common in sterile soils, indicated that they were at home there as well as if growing in vast Lapland pastures beneath white trenched birches and other boreal trees. And various fungi occupied the attention in the puff balls, the Agarics the elegant zoned Polypori of which one, *P. versicolor* is Cosmopolitan, assuming a great variety of shapes, and clustered velvety *Stereum hirsutum*, with the thin flattened and soft silky *Thelophora punicea*, and black purple *Sphaeria deusta*, seeming like some burnt surface of the wood on which it grows, and myriad specked, and dotted

minute forms, well suited for microscopical studies in such kinds as *Sphaeronema*, *Septoria*, *Microthyrium*, and dead leaves of oak, mottled with irregular spots of yellowish white, encircled with a thickened crimson line or border (*Depasea*), every twig, indeed, and almost every decaying herbaceous stem, a garden of delights to the instructed and cultivated eye. Next in order came the green and refreshing mosses, renewing their youth and beauty in a colder and moister atmosphere, of which were gathered *Cylindrothecium seductrix* matting the ground and bravely bearing its bright reddish brown capsules erect and fearless, and smaller kinds in *Desmatodon* and various *Hypnum*s, a name suggestive of mossy couches where also the curiously hooded *Polytrichum*s compactly grow, inviting to repose in the shade. One of the finest and well developed specimens of the rock lycopodium (*Selaginella rupestris*) occurred, a pretty plant, but defying culture, preferring the moist dried spots, the chinks of rocks or gravelly soil, where a scant herbage prevails, and with it the green fronds of the equally hardy rock polypody, of ancient fame, in the simpler and ruder healing art; a few bright green stems of the crested shield fern, and fragments of the little, brown, blunt-lobed *Woodsia* attested to the variety in this section of the botanical domain.

It was hardly to be expected that plants next in order, viz.: the grasses could be prominently represented; yet a flattened and outspread tuft of the creeping love-grass (*Eragrostis reptans*) came to hand and the concealed flowering panic grass (*Panicum clandestinum*), with a pretty sedge in *Cyperus Engelmanni* were among the spoils. A rush (*juncus*) or a liliaceous plant would have helped to maintain the continuity in our floral series, the fruits of this day's collecting; but nothing of the sort seemed to have occurred, although the *Smilax* family next in order, exhibited itself in the large globular bunch of black berries of *Smilax herbacea*, and in the climbing stems and leaves of *S. rotundifolia*. What a pity some variety of this last species should not be originated, which dispensing with its prickly armature, might invite to cultivation and afford a beautiful climber; why not, it is as lucid in leaf and graceful in tendrilled wreath as *Myrsiphyllum asparagoides* of the greenhouse?

Had the waters of the river been searched, doubtless those vegetable naiads of the stream the *Potamogetons* had come to view, of which no trace has been found; while of the *Coniferae*, *Ju-*

niperus Virginiana claims mention, bearing on its twigs the anomalous Cedar Apple, the matrix of the splendid *Podisoma*, whose golden and tremulous gelatinous threads, after a warm rain frequently arrest the attention, as if the fabled apples of the Hesperides were revived. Of the Willow family were found the Angled Cotton Wood and the *Salix humilis* bearing on the ends of its summer twigs those curious excrescences of of closely imbricated leaves of a cone-like form, the work of insects, and known to Entomologists as galls; of the cup bearing trees and shrubs, Wild Hazel Nut, the Bear Oak, Post Oak and the White Oak; the Buttonwood or Plane tree showed by the size of its foliage a vigorous growth; the Elm was represented in the corky barked White Elm; of other trees and shrubs were: *Negundo aceroides*, *Ostrya Americana*, *Ptelea trifoliata*, *Lonicera flava*, *Euonymus Americana*, *Celastrus scandens*, *Rhus glabra*, *Cephalanthus occidentalis*, &c. Pods and seeds indicated where grew spontaneously *Echinocystis triloba*, cultivated as a curious creeper elsewhere and *Asclepias cornuti*, whose young and tender shoots are boiled for Asparagus, and downy heads of soft silk, betrayed the presence of *Antennaria Margaritacea*, whose shining pearly flowers belong to the Autumn days. And the early summer had brought the Virginian *Anemone*, whose densely packed woolly seeds still were adherent to the flower heads. Of annuals and herbaceous perennials, were found the three seeded Mercury, *Acalypha*, with its purple and crimson leaves, and threatening but harmless spikes, resembling some nettle, whence its ancient and classical name; and *Teucrium Canadense* or American Germander, commending itself by its royal surname of the King of Troy, who found healing virtues in its leaves, as Pliny tells us of some such species, which was known in his day. *Onosmodium molle* told of southern borages, helped by *Lithospermum longiflorum*, with its seeds of stony hardness; *Ludwigia alternifolia* presented a tall dry stalk with the most elegant boxed formed or casket seed vessels, and a singular aperture on the top. Quite too elegantly to be passed by, *Geutiana ochroleuca* whispered about sister species, growing and blooming near glaciers and on Alpine slopes, blue and intense as the sky above; *Gerardia auriculata* as one of our native Foxgloves was there; *Sarotha gentianoides* offered its citron or lemon-peel scent to the gatherer, asking only to be squeezed into expression, and keeping company

with *Hypericum Sphaerocarpon*; *Leechea minor* and *L. thymifolia* told that the rock rose could be found too, though unlike that, very small purplish flowers were all they could boast. The elegant family of leguminous plants was represented in yet standing stem of *Petalostemon violaceum* and *P. candidum* fit for any garden; while the tall aspiring yet modest *Lespedeza capitata* spread before the observing eye its curiously netted foliage.

Some coveted autumnal flowers are known to florists as *Rudbeckias*, conspicuous on Western prairies, and helping to add to the gorgeousness of the scenery. Of these were the stiff chaffy heads of *Echinacea purpurea* a bold and striking plant, and the compass plant *Silphium laciniatum*, yet survived, of which marvellous stories are told, credited and disbelieved alike. Then came other *Composita* of which *Grindelia hirsuta* may be cited, the heavy scented *Dysodia chrysanthemoides* no unapt resemblance in aspect and odor to the garden marigold; the spiny and curved-hooked *clotbur*, scarcely differing from its form as it grows on the sands by the sea; and lastly appear the *Asters*, bearing on their slender wandlike stems, the starry dish-leaves or flower-cups filled more or less with feathery seeds, each kind a study in itself, so diverse the crown or pappus, and so differently marked the achenium or nut-like wedge-shaped seed. Of these was discriminated *Aster anomalus*, with smooth achinium and forty bristly rays to its pappus or down, in fact that, the true and refined calyx; the *A. nemoralis* with narrow lilac purple florets; the *A. concolor* with silken achenia and bright violet purple ray-flowers, the *A. sericeus* with ribbed achenia, and described as an elegant species, with silvery foliage, faded dry, unpretending—now buried beneath the drifts or standing in patient heedlessness—yet worthy a passing memento for departed worth. A few more weeks, and fewer months, and summer and autumn will again visit these haunts, rousing to vitality their now dormant buds and calling on others to celebrate their charms, as has been done now by one who was not there to see, but who was remembered by those of that social, merry party, which made up the field meeting at Buffalo Rock.

A GOOD WHITE WINTER FLOWER.

BY P., BALTIMORE, MD.

In these days, Mr. Editor, when so many people wander after new things, it is perhaps worth

while to remember the merits of old friends, especially when they will do for us all that the best new comer ever could be expected to do. Of this class is the *Double White English Primrose*.

As a window plant it is particularly valuable, as it does not suffer so much for the want of full light as some plants do. To be sure it does best with an abundance of light; but some things must have this or nothing comes of them. Then the flowers are so fragrant. In my taste the Violet is not more grateful than the smell of a good English Primrose.

As a bouquet flower it is equal to the best. The pure white flowers are always welcome, and then they already have somewhat long stems, and need little tying to twigs to get them of proper length. One after another, too, flowers come into succession. From one of my plants I obtained forty-eight blossoms from the first of January to the middle of this month.

It is, moreover, a plant of very easy culture. The worst time is the summer, but I put all my plants out of pots, and set them thickly together in a box of rich earth in April, and set the plant box out under a cool shady wall till fall; when they are divided into as many as I can make, and potted into four-inch pots, with very rich soil, and then keep them in a cool frame till wanted for flowering. As they never produce seed, they are scarce, because there is no way to propagate, but by divisions of the roots; but I am sure if the public who like window and bouquet flowers, only knew what a little treasure it is, nurserymen would soon get up enough plants for them.

POTATOES FROM CUTTINGS.

BY J. M.

I would call the attention of your readers to the fact that those of them who wish to raise Potatoes from cuttings, should lose no time in starting them. This method of raising them, I think, was first mentioned in the *Monthly*, by W. C. Strong, of Mass. Some months ago, when at Fairhill Nursery, Harrisburg, Pa., I was shown by Chas. Cruicknell, the Superintendent, over a bushel of the "Early Rose," raised from a single tuber, which is certainly more than usually raised by cutting into eyes and planting in the old style. Those desirous of increasing rapidly their stock of high priced Potatoes, the above mode of striking the top in bottom heat in-doors is

ESSAY ON BEDDING PLANTS.

BY WALTER ELDER.

Read before the Penna. Hort. Society, March 1st, 1870.

As bedding plants have become so universally popular, and generally cultivated by the lovers of ornamental gardening, I have thought that a few statements about them might not be uninteresting to the Society. They are composed of annuals, biennials and perennials, to suit circumstances; some of the hardy species are raised from seeds in the open ground in summer, and protected in cold frames during winter. But the greater number are tender exotics, and are propagated in glasshouses and transplanted into small flower pots, in which they are sold in spring and summer; some being more tender than others, should be later set out. The species and varieties are almost innumerable, and their diversities so great, that a harmonious combination of them in groups, gives a splendor to the parterres most charming to behold. They are not only individually beautiful, but their contrast when nicely blended on beds and borders, far surpass in loveliness, our fondest anticipations and most anxious desires of former years. Some are admirable for the beauty of their blossoms; others for the marvellous variegations of their foliage; some blooms are delightfully fragrant, and many of their leaves are sweetly perfumed. There are some to suit every special mode of ornamentation, and every exposure; some flourish best in full sunshine; others best in partial shade; some are only a few inches in height; others are one to three feet tall; some are adapted for decorating rockworks, earthen mounds and edges of ponds, or to grow in fancy stands, vases, hanging-pots and baskets, both in-doors and out-doors.

There are various modes of arranging them on parterres. Some cultivators prefer the promiscuous arrangement; others like the "Ribbon Style," and some set the dwarfs and those of stately growths upon separate beds, so that all will display their peculiar beauties to the best advantage. From the countless numbers of species and varieties; the old and young; the rich and poor, and even the most whimsical can find a choice to suit their fancies; and the rapid and successful systems of propagation now in practice by our commercial florists make all kinds cheap.

It is about a third of a century since the general bedding out of tender exotics began; before

that time, perennial, hardy, herbaceous flowers were set out as standards, and annuals and biennials were yearly raised from seeds and mixed with them; it was weeks after annuals were sown before they bloomed; biennials took months, and perennials one or two years to bloom. How different it is now with our multitudes of bedding plants? We can make a flower garden of splendor in a few hours, that will give a blaze of blossoms of sweet perfumes and foliage of various forms, hues and variegations, all the growing season. The lukewarm cannot now make the excuses they made of old; "our seeds did not come up, our patience gets worn out before our garden makes a show."

An occurrence connected with this subject, happened in this city, about thirty-five years ago, which I think is worthy of mention here, as it gave the first impulse to the general bedding out of plants to decorate our gardens. Robert Buist, our famed Nurseryman, got two packets of *Verbena* seeds of new species, from a traveling botanist, which he soon converted into growing plants, and in due time they showed their colors; one bore clear pink blooms in large trusses; the flowers of the other were white, with the fragrance of Hawthorn blossoms. I well remember of the joyful tidings spreading over the nation like wildfire, and produced a sensation of delight in our *Flora*, the like of which she never before experienced; and the same was the case throughout Europe. By that I claim for Philadelphia, the laurel of laying the foundation of ornamenting our gardens with choice exotic plants from every clime, and which has attained such prominence, and award to Robert Buist the honor of "setting the chief stone of the corner." Skillful amateurs and gardeners became so excited, they began hybridizing and using special culture to produce new and superior varieties of the various genera, and were successful. *Sports* made variegations in both blossom and foliage, which carried their enthusiasms to greater heights. Botanists were successful, in their far off explorations, in the discovery of many new species of merit, and brought them home for propagation. These combined efforts have been persevered in up to the present time, and it is through them that we now have the vast legions of bedding plants, with which we can decorate our gardens so quickly, cheaply and beautifully; their like was never before seen growing in the same latitude. Now, although Mr. Buist "set the first stone," he has not been "foreman" of

the whole work, in the erection of chaste floral structures, as many of his contemporaries have equalled him in producing superior varieties, and Henry A. Dreer of Philadelphia, is one of them.

Our National Government, with commendable liberality to encourage the healthful amusement of floriculture, has enacted laws to carry bedding plants and seeds in small parcels by its mail; so now a dozen of small plants, or twenty packets of flower seed are as swiftly and safely transported as epistles in script. *Express Companies* are also serviceable in safely carrying larger parcels; so our citizens in remote parts, can be supplied as well as those in the vicinity of nurseries. Nurserymen's catalogues, with directions how to grow flowers, and descriptive lists are also carried by mail. Again, very small baskets are made in thousands for our commercial florists, to pack in them six or a dozen bedding plants without pots, for ladies or gentlemen to carry in their hand, out to their summer rural residences to plant. They look as clean and gay as if living bouquets; and they are admirable gifts for the *beaux* to compliment their *belles* with in spring and summer. The plants are carefully set out and watered when need be; their increasing growths and beauties, swell the fond affections which burn in true lovers' breasts.

The species and varieties are too numerous for me to describe here. Distant purchasers should send for Nurserymen's Catalogues, and make selections from, or leave the selections for the Nurseryman to make; they possess the knowledge to do so.

The following summary may assist the unexperienced to make their arrangements; yet some here named for shade, will also flourish in sunshine. Plant in partial shade, Daisy and Primrose, Polyanthus, Sweet Violet, Lobelia, Sweet Alyssum, Lily of the Valley, Mimulus, Green Leaved Pinks, &c., the above are dwarf. The following grow stately; Feverfew, Fuchsia, Calceolaria, Geranium, Hydrangea, Dicentra, Chrysanthemum, Dahlia, Larkspur, &c. Set the following in sunshine; Ageratum, Eschscholtzia, Gazania, Verbena, Petunia, Phlox Drummondii, Heliotropium, Salvia, Vinca rosea, Lantana, Pansy, Double Portulaccas, &c. The following five genera are *bulbs* planted in spring; bloom in summer and autumn, and are dug up in fall, except Japan Lily; all of great beauty; *Gladiolus*, hundreds of species; *Iris*, several species; *Ja-*

pan Lilies, several species; *Tigridia*, two species; *Tuberose*, two species. The following three genera are of many species and all varieties, with ornamental leaves of various colors and variegations, and are admirable when judiciously mixed among the blooming kinds; *Achyranthus*, *Coleus*, *Caladium*; these should not be allowed to bloom, as that makes them look too lean, and spoils their peculiar beauties. Very many of the blooming varieties are also of variegated foliage.

The following notice of the colors of blooms, may help new beginners. Rose, Dahlia and Chrysanthemum, show nearly all colors but blue; German Aster, Phlox Drummondii, Verbena, Green Leaved Pinks; Sweet William, &c., give nearly all colors except yellow; Carnation, Fuchsia, Geranium, Gladiolus, &c., show white, pink, buff, salmon, scarlet and crimson; Vinca rosea, gives white and rose; Gilliflower, white, crimson and purple; Petunia, white, red and crimson, on double and single blooms; Salvia, scarlet, purple and blue; Feverfew, Sweet Alyssum, and Nierembergia, are all white; Calceolaria, Eschscholtzia, Mimulus and Gazania, are yellow; Agapanthus, Larkspur, Lobelia, Forget-me-not and Browallia elata, are all blue.

The following four genera are annual climbers and bloom four months: *Maurandia*, a white, a purple, a pink and a blue. *Thunbergia*, a white, a buff and an orange, with black eyes. *Tropaeolum*, yellow, orange, scarlet and crimson. *Ipo-*

mea, white, pink, purple, lilac and blue. The splendor of finely arranged parterres with the bedding plants, is almost indescribable, and the sweet odors they emit, are delightful. The demand for them is so great, that Verbena, Petunia, Phlox Drummondii, Dahlias, Rose, German Asters, Gladiolus, Tuberose, Tigridia, Japan Lilies, &c., are each grown in acres by individual florists; and Fuchsia, Feverfew, Geraniums, Antirrhinum, Chrysanthemum, Monthly Carnation and Picotee Pinks, and Green Leaved Pinks of constant bloom; Heliotropium, Sweet Alyssum, &c., are grown in half acres; and sold in hundreds of thousands, yearly. During the past twenty-three years, I have been an extensive planter, and have not yet seen the supply to equal the demand for them.

Now, as the beauty and pleasure of the flower garden depends much upon the judicious arrangement, as well as the excellence of the plants, the following memoranda might assist the uninitiated to make out their selections. It is the harmoniously combined diversity, which gives

that exquisite enchantment, which we feel in passing along the walks of the flower garden, where our scent and sight are equally gratified. As the species and varieties of showy bloom are most numerous, they should be most plentifully set out, for there cannot be a flower garden without flowers; yet sweet perfumes are also needed; and foliage of pretty variegations are admirable for variety. Therefore, in selecting a hundred plants for one garden or parterre, I would choose from the different classes, to make a comely whole. Of fragrant flowers, Rose, Sweet Alyssum, Mignonette, Heliotropium, Musk Plant, Gilliflower, Sweet Violet, Tuberose, &c. [Of sweet-scented leaves, Aloysia citriodora, (Lemon Napoleon), Geraniums, Apple-scented, Rose-scented, Nutmeg-scented, Lemon-scented, &c. Of variegated foliage, Achyranthus, Coleus, Caladium. Geraniums, Silver-leaved and Zonale; these should not be allowed to bloom, as leaves are the beauty. Of variegated flowers, Antirrhinum, Carnation and Picotee Pinks, Dahlia, Petunia, Pansy, Mimulus, Calceolaria, Sweet William, and many of the Green Leaved Pinks, Fuchsia, &c.]

All the balance to make up the hundred, would be of showy blossoms of various colors, and the plants of different habits and statures of growth, and times of blooming.

I saw at the exotic establishment of Thomas Mackenzie of this city, a few days ago, about fifty new seedling *Coleus*, all of surpassing beauty and clear distinctions. The forms, sizes, colors and variegations of their leaves, all different; some were maroon, edged and bordered with clear pea green; others were dark purple, edged and bordered with bright grass green; some were light and dark bronzy brown, edged and bordered with lemon, orange and golden yellow; others had their colors mixed in blotches and marblings. I thought them more peculiarly beautiful than any of the genus I had seen, (not excepting the famed variety, *Setting Sun*). Close by the *Coleus*, were about thirty new seedling Geraniums of the Zonale class; the zones or rings on their leaves were white, yellow, brown, maroon and green of various hues, all faintly shaded with a coppery bronze, which made them look transparent. Some of them excel in beautiful variegations, the famous varieties, *Mrs. Pollock* and *Mountain of Snow*. Other commercial florists, will, no doubt, have raised new and superior varieties of the various genera; so I may tell the lovers of flowers, they will be

presented the coming season, with varieties so choice and new, they will illuminate their parterres with far greater splendor than has ever been seen heretofore.

Surely, the Millenium of Ornamental Gardening is at hand! Surely, we are now near the point of perfection! The *Garden of Eden* may soon burst open before us, with all its dazzling splendor of everlasting delight.

CONTAGIOUS DISEASES AMONG PLANTS.

BY H., OLD WESTBURY, L. I., N. Y.

I have frequently observed that where the *Arborvitæ* has been planted from the forests of Maine, that it is very rare that one is found dead alone in the rows in the nursery, but that generally from 3 to 5 or 6 are dead; then a space perhaps of 20 live plants intervenes before dead ones occur. I have noticed this so often for a few years past, that it has arrested my attention, and an inquiry as to what is the cause of several being found dead together. The dead ones, where they do occur among deciduous trees, are without any regularity. Now, if this is the case, and found to be the fact with other nurseries, why and wherefore? We know that contagious diseases, such as measles, scarlet fever, diphtheria, &c., occur very probably in families or neighborhoods, and some are taken, and others left, or escape without any attack. May there not be a fungus that assists in killing the young, poorly rooted *Arborvitæ*, and attacks its neighbor and perhaps the next one, until one is met with, that is strong in vitality, and resists its attacks, or after causing the death of 2 or 3, nearly exhausts its energy. Now, friend Meehan, these are crude ideas, and perhaps are only coincidences, but as thou art an observing man, please look among thy young *Arborvitæ*s first year planted, and notice if the circumstance I have related occurs with them. The phenomena of life and death is but little understood, and perhaps never will be fully, but there is in my opinion, much that will yet be unfolded of the forces of vitality, even if we are not able (as Prof. Youmans thinks we will yet be) to bring the exact forces and materials to produce a living organism together.

[In an address by the Editor of this Journal, before the American Pomological Convention at St. Louis, and which is published in the Society's transactions, direct experiments were de-

tailed, which proved that the suggestion by our correspondent is correct. The fungus found in the roots of diseased apple trees, was placed on the end of a row of Paradise stocks, which were heeled in about two or three inches apart; and it spread to the roots of the next and so on, gradually, for several weeks, until the whole row of about fifteen feet was killed. First the leaves would get blotched with brown, and gradually the whole plant die away.—ED.]

DISEASES OF PLANTS.

BY JACOB STAUFFER.

Mildew (in Ger. Mehlthau, rust on corn), this term is generally applied to a particular mouldy appearance on the leaves of plants, produced by innumerable minute fungi, which if not checked in their growth, occasion the decay and death of the parts on which they grow, and sometimes of the entire plant. The causes favorable to the production of mildew, are a rich soil and a moist atmosphere, without a free circulation of air or sunshine,—such as moist cloudy weather, continued for a few days; again it sometimes occurs in excessive dryness, which checks the action of the natural functions of the vegetable organs. Under certain circumstances it may be checked by the application of sulphur in the form of powder on the leaves covered by the fungi, this being found to destroy them without greatly injuring the leaf.

Rust. The common name of *Trichobasis Rubigo vera* a parasitic fungus, which, with one or two closely allied species confounded with it by the farmer, preys upon the leaves, glumes, stalks, &c., of cereals. This seldom grows on plants, but when they are over luxuriant; except when it attacks the chaff or seed, it seldom proves injurious to any extent, this fungus although by that name usually confined to cereals, like the

Smut. A disease incidental to corn crops, by which, the farina of the grain in the whole body of the seed is converted into black soot-like powder. Is to be regarded as a fungus growth.

Mr. Berkely, considered one class of fungi as springing up from various bodies, whether animal or vegetable, in a more or less advanced stage of decomposition. The ephemeral toad stools, of the hot bed, the mushrooms of our rich pastures, the sap-bills on decaying trees, the moulds which infest our food, and even the tissue of living animals, the mildew, blunt and

smut of corn crops, with many other more or less familiar objects, are so many fungi, all agreeing in the main particulars, which are indicated on fruit and trees,—however variously developed, the same general law no doubt applies to most, if not all of them.

LARGE TREES EAST OF THE MISSISSIPPI RIVER.

BY S. B. BUCKLEY, STATE GEOLOGIST, AUSTIN, TEXAS.

I propose in the *Gardener's Monthly* to notice some of the large trees growing east of the Mississippi River, such as are included in the following genera: The Tulip tree, called Poplar in the West and South, and sometimes White Wood (*Liriodendron*); Sycamore or Buttonwood (*Platanus*), Chestnut (*Castanea*), Oak (*Quercus*), Black Walnut (*Juglans*), Pecan (*Carya*), and perhaps some others.

First, the Tulip tree, which is probably the largest tree of the older States. It extends from New England westward to the Mississippi, beyond which it is rarely found. It grows in Arkansas as far west as Crawley's Ridge, thirty or forty miles west of Memphis. It was not found west of this by those engaged in the geological survey of Arkansas. According to Dr. Engelman it is found in Southern Missouri, but Prof. Swallow in his report on the geology of that State, states that he and his assistants did not recognize it. It is not indigenous in Texas, and is rare in the gulf cotton States east of the Mississippi. It is rare in the western part of Massachusetts, and in New England does not extend farther eastward. Michaux says, that its northern limit is the southern extremity of Lake Champlain, in latitude 45°. It occurs in Canada in the vicinity of Niagara Falls, from whence it extends westward into Michigan, where it is as far north as Ann Arbor. It is a stately, magnificent tree, as seen in southern Indiana, Kentucky, Tennessee, and the western part of North Carolina, where it is upwards of a hundred feet in height, with a diameter of six or more feet, all of sound wood. I have measured some Sycamores or Buttonwoods, with a circumference greater than the Tulip tree, but they were hollow and mere shells, and only sixty or seventy feet high. The Tulip tree has, I think, ampler dimensions and more wood than any of its associates in the forest.

The following measurements of Tulip trees

were made by me at the height of three feet from the ground, unless when otherwise stated. One near Waynesville, among the mountains of North Carolina, 26 feet 10 inches in circumference. One 33 feet in circumference, at Cold Spring, on the waters of the Pigeon River, in Haywood County, in North Carolina. Another 29 feet 3 inches in circumference, on the head waters of the Little Pigeon, and several of 20 feet and upwards in circumference, near the same place. One 24 feet in circumference, on Jonathan's Creek,—all of the preceding were in Haywood and its adjacent Counties, in the mountains in the western part of North Carolina. They grow in the rich coves and valleys, at the base of the mountains, where are also large oaks and big chestnuts. All of these Tulip trees have a height of upwards of one hundred feet.

Near Rising Sun, in the southern part of Indiana, are many large Tulip trees, such as 18 feet 6 inches in circumference, 16 feet 6 inches in circumference and 17 feet 9 inches in circumference. The elder Michaux measured one three and a half miles from Louisville, Kentucky, which was 22 feet 6 inches in circumference, at 5 feet from the ground, and whose elevation he judged to be from 120 to 140 feet high. A few years ago I visited Dr. Short, the botanist, who dwelt near the locality of this tree. He informed me that he had seen it, but that it was blown down many years ago during a thunder storm. He assisted me in measuring some large Tulip trees in that vicinity, but we found none upwards of 6 feet in diameter.

Dr. A. Flounoy, who lives near Shreveport, in Louisiana, told me that he saw a Tulip tree in Middle Tennessee, which squared fifty inches at the butt, and measured 105 feet to the first limb. From this tree a dug out boat or canoe was made, which was 105 feet long. A young gentleman informed me, that one was cut down near his father's in East Tennessee, on a small creek emptying into the Pigeon River, in Sevier County, which was fourteen feet in diameter.

The Tulip tree is a moderate grower, and difficult to transplant from the woods, as I know very well from experience having tried several and failed, hence I was very glad to receive one from your nursery this winter, Mr. Editor, which is now alive, and which I hope will continue to live in Texas long after we have passed away.

I counted 215 annual rings in one at Camp Stoneman, near Washington, in the District of Columbia, which was 2 feet 6 inches in diameter, and another which had 9 annual rings, and was 5 inches in diameter. They grow on upland, in a soil of moderate fertility. Prof. Meek, the well known Geologist and Paleontologist, informed me that there was a Tulip tree standing on the farm of G. C. Schank, near Middletown Point, in New Jersey, which was 10 feet in diameter.

Prof. Wood in his "Class book of Botany," states that he measured a Tulip tree, which had been recently felled, which had a circumference of 23 feet at 4 feet from the ground, at 30 feet from the ground it was 5 feet in diameter, the whole height 125 feet.

Where the large Tulip trees grow and grew, pines suitable for lumber are rare. The timber of the Tulip tree is used as a substitute for the pine—hence, the large Tulip trees of the country are fast disappearing.

The Tulip tree is decidedly ornamental and deserving of general cultivation. Its smooth curious leaves afford a fine contrast with those of other trees. In autumn its leaves turn yellow, or yellow with green spots. Occasionally some of its leaves are very beautiful, being yellow with green along the rims, or tinged with brown; I saw such on the Indian Reservation, on Cataaugus Creek, near Buffalo, New York, in the Fall of 1865.

WINDOW PLANTS.

BY H. M'GREGOR, IOWA.

Primroses afford more satisfaction for the little care they demand than any plant of which I know for the window,—troubled by no insect, and continually in bloom. I have two plants that have bloomed this makes the third winter. They are now 3½ feet in circumference, their large pendant leaves nearly obscuring the pots, making beautiful objects for brackets each side of the window. I have counted a hundred blossoms open at once on one plant. They are the *P. macrophylla* of seed from Hovey & Co. Have tried several other sorts, but these are far superior.

[This note has reference to varieties of the Chinese Primrose, and not the English Primrose referred to by another correspondent.—ED.]

EDITORIAL.

HOW TO RAISE NEW PEARS.

Under this title, Mr. Thos. Rivers contributes a paper to the *Gardener's Chronicle*, which is of great interest. He shows that Pears are not cross fertilized from other trees to near the extent supposed, as when he sowed seed from trees not artificially crossed, the general character of the parent was nearly maintained; while, when the same variety was purposely impregnated by the pollen, the most diverse characters ensued. He thinks that, as a rule, thorny trees produce the best fruit, and that the best Pears have been the product of chance; quoting the fact particularly that Major Esplan by his chance seedlings has done more permanent good in fine varieties, than Van Mons did by his celebrated and much vaunted system. This accords with our frequent teachings, that the credit which scientific men are apt to give to the "skill of the hybridizer and the intelligent horticulturist in ameliorating the sour crab," and so forth, should rather be placed to the account of nature's own inherent laws of evolution. He further proves that Van Mons' notion that by successive generations of Pears can be brought to bear so young, that fruit may be had from a two or three year old tree, is not correct. Another very interesting point, and one which also we have always contended for, is that there is a limit to the *direction* of improvement in Pears. One will probably have better success in raising from a second class fruit, than from one ranking as first quality. He has been all his life raising from such fine kinds as Seckel, Duchess, Bartlett, —in fact, most of the popular kinds, without finding one "better" than the parents, though from such parents fruit is uniformly "good."

Not so much from our own personal experience, as generalizing from the facts presented by others, we have seen and taught these principles for some years past. These direct results of a long life of actual experiments are therefore of incalculable value to those interested in the improvement of fruits.

The great law undoubtedly is, that there is no limit to the *variety* of change, but that there is to *direction*. Nature does not advance in one line far before she returns to the hub, and starts again another spoke, only soon however to reach

the circumference of her ever revolving wheel of change. However much it may go against our feelings to overthrow idols we have given our heart worship to so long, it is getting evident that in many respects "Van Mons," "Knight" and other worthies have to go; we have "to learn the hard lesson over again," although in this particular case, it is not so very severe a task to remember, *there is much more chance to get the best seedlings from poor kinds with hardy vigorous constitutions, than from kinds already as good as they can be.*

Our own Rogers has taught us this in the grape; but this experience of River's should add force to the lesson.

ORCHIDEOUS PLANTS.

It is a pleasure to note that the culture of these beautiful plants is increasing. A few years ago they were only seen as one may say—here and there, while now they are comparatively common.

Much of this has been the result of a better knowledge of culture. All we know of orchid growing in the past, was derived from experience in another country,—an experience immensely valuable when slightly varied to suit our circumstances; but yet when too closely imitated not the most favorable to success. Certainly we know that when we had our hot, moist, dark houses, just the things for tropical ferns; but not for flowering plants of any kind, we never had the successes of modern times.

To day we saw a beautiful specimen of *Eulophia* or *Zygopetalon Mackai*, with numerous flowers three inches across, and filling the large house with fragrant odor, which had for years been grown in a greenhouse, in which only enough heat was given to maintain a bare growth. The house, indeed, was kept for preserving bedding plants over winter. The plant was exposed to the full sun, both in summer and winter, and though we have seen much larger specimens, and though if this plant had even under these circumstances, the advantages of a good gardener to grow it, it would have been larger—yet there was a pleasure in seeing this beautiful plant succeed so well under these circum-

stances, which could not be excelled by the success of the most expensive orchidæa house of the olden time.

And so again, when people fond of flowers visit the gardens of Mrs. Baldwin, H. Pratt McKean, Stephen Morris or W. Weightman, and see what their excellent gardeners Joyce, Newett, Young and Johnson are doing in these plants,—see *Dendrobiums*, with hundreds of flowers open on a single plant at once; *Catleyas*, *Oncidiums*, *Maxillarias*, and so forth, blooming more freely in houses which the good men of the past would suppose fit only for *Geraniums*, than they did with all their well elaborated plans; it is clear that we have made a great advance in horticultural knowledge.

We hope to see these beautiful plants more generally known. The only thing against their extended culture, is their price. They propagate very slowly, and it is not every one who can afford from five to fifty dollars for a good flowering plant. But there is always this satisfaction; that if misfortune should overtake one, the plants will always bring all they cost. A rare tree, costing a large price, has to be left behind when one moves away; or a new rose or plant of any kind rapidly deteriorates in market value; but a collection of orchidæa, packed up and sent to any of our large towns, will generally bring far more at public sale than the cost to collect them.

We make these remarks in order to induce more attention to these remarkably beautiful and rare plants, than has hitherto been given to them. They have an interest no other tribe of plants possesses; their culture is but little, if any more difficult than other plants, and they have an intrinsic value to which time only gives additional weight.

SEARCH FOR OURSELVES.

It is very strange in these days to find persons when they argue on any new idea, bringing up the "experiments of Sir T. A. Knight," London, or others who lived a hundred years ago, when often a few moment's experiments would furnish facts of their own. In our own experience, we have looked on no man's observations as sacred as our own; and whenever we have heard or read of any one's experiments, have endeavored, whenever practicable, to repeat them over again. It has often resulted that we have found former observers wrong, and as the

beautiful theories are founded on these wrong facts, it has made it necessary for all of us to "learn the hard lesson over again."

We often think it strange that people are too lazy to hunt up facts for themselves in cases where personal observation would be priceless to them.

We have been present this season at various meetings of horticulturists, and have heard discussions by the hour on questions which a few minutes of personal observation would at once settle; and we have thought that we could do no greater service to our readers than continually to urge them to "see for themselves."

Some years ago we all believed that a very finely pulverized and clean surface soil, kept the substratum cooler and moister than a closely shaven grass surface. When the writer put his hand on a lawn and found how cool it was, and how hot it was on a cleanly weeded surface, and knowing that evaporation was always in proportion to the heat of the surface, we felt that such a warm surface *must of necessity* be hotter and drier than that under the grass. But it was easy to try it with the thermometer, and sure enough the glass told the tale by many degrees of more heat under the clean surface.

Thousands of persons must have read our statement of this fact,—yet on a recent occasion, our repetition of it at a meeting, called forth a volume of disbelief from eminent men present; *but not one had ever tried it.* Of the thousands we have referred to, we doubt whether *one* has ever repeated it,—and yet the whole body of fruit growers base their practice on a theory, which has no foundation in fact. Any one with a thermometer may satisfy himself any summer's day, that a finely pulverized surface is *not as cool* as one protected from the sun's direct rays, and the fact should be of immense value to fruit growers.

THE MEXICAN AND MONTHLY RED ALPINE STRAWBERRY.

We hold it to be the duty of a leading horticultural magazine to fearlessly expose error where it manifestly exists. Newspapers generally need no stimulus to this. It is every one's experience that those who err, get little mercy from the press. It requires more nerve, however, for a newspaper to defend a man who is wronged, when all the world unites in condemning him. Few will do it; but we hold it to be no less a duty. For ourselves at least we think the pub-

lic generally gives us credit for no object but a desire to arrive at the truth.

This Mexican Strawberry case to day stands thus:

A year or two ago some western men advertised a new variety of Alpine Strawberry. It was at once condemned as the "Monthly Red Alpine," by some of our friends in the East. Judging from what we had seen in the advertisements, we thought so too; but not having seen the plant, gave no opinion. Being in Chicago last June, we went to see the plants at Dundee, and to the best of our knowledge and belief, found it not "Old Monthly Red Alpine," although familiar with the latter variety.

We have always, however, granted that we might be mistaken, because we had not had the plants side by side. We have seen enough in horticulture and botany to know how easy it is to be mistaken. Mr. Fuller very kindly offered to send us some of his Monthly Red Alpines last fall, and we obtained some from him, as well as all the varieties of Alpine we could get from any source. All strawberry men know that when the young leaves are first making their Spring growth, they are more readily distinguished than at any other season, the fruiting time not excepted. We put them to this test. They were potted in three inch pots, placed all side by side in a cool greenhouse. We have many varieties thus together, and so distinct are they as they now push up (1st of March), that any boy of ordinary intelligence can pick out one from the other, and no one whom we have selected has chosen the Red Monthly Alpine to compare identity with the Mexican. First, we may say, that Mr. Fuller's Monthly Red Alpine is undoubtedly genuine. We have them from Knox, Prince and others and they are all alike and true to name. But they are *not like the Mexican*, and the difference is here:

The Monthly Red Alpine of Fuller, when it is sending up its first leaves, has the petiole as long only or barely longer than the central leaflet. This leaf stalk is *densely* clothed with long hair, and the stalk itself is of a pale green color, or with a faint tint of purple. The leaf itself is of a bluish green, the leaflets are broadly ovate, and the teeth on the edges of the leaves are, in botanical language, rather crenately notched (not deeply), than serrate, and these notches are abruptly pointed.

But the Mexican (received from J. P. Whiting,

after Mr. Fuller), have the leaf stalks nearly *double the length* of the terminal leaflet, and has *short and scattered hairs*. It also has a strong *pink tint*. The leaflets are *pale green*, nearly ovate, deeply toothed and sharply pointed.

We are very glad for the sake of justice, to have this opportunity of so clearly demonstrating that the Mexican is *not* the old Red Monthly Alpine.

Indeed it comes nearer to others than to this. Its nearest ally amongst all we have, is the old Red Alpine (not the *Monthly*). Differences can be detected, but it requires sharp eyes to point them out, so far as leaves or habit goes. But herein is a great difference; while this has at this time has no sight of a flower bud on the dozen plants, all the Mexicans have *pushed up leafy flower shoots*, and one flower is open. This floriferous character therefore distinguishes it easily.

There is, therefore, no longer any doubt about the entire distinctness of the Mexican as a *variety* from all others.

Only one other question remains,—its value. There are some who like apples, while others would prefer olives. No doubt some don't like Alpines, while others do; and we are amongst the last class. For those who do like them, and who are willing to give them the cool and moist soil Alpines should have, there is no variety so good as this American variety. The introducers deserve the thanks of Pomologists, not merely for introducing an improved variety, but for turning attention to a class of Strawberries which have not yet had justice done them.

LANDSCAPE GARDENING.

(See Frontispiece).

In probably nothing is the intelligent progress of a people better indicated, than in their patronage of the fine arts. If we enter a cabin, no matter how humble, and find a love of pictures displayed, though they may be of the rudest execution, we think the better of the inmates than of those who have none. This is more particularly true of garden art—pictures wrought on the living canvas of nature—the rudest attempts draw the residents amid such garden scenes nearer to us, no matter how humble or uneducated their efforts may be. The higher the style and the more successful the results, the more elevated in the intelligent social scale we esteem the owner.

The commercial part of gardening has pro-

gressed wonderfully the few past years; but gardening as a matter of taste and mark of civilization has not kept pace with it. We have thought that it might aid and encourage the efforts of a few good men who are laboring in this field, to show how beautifully a small place may be laid out, by giving a plan by the famous German landscape gardener Siebeck, which we have been allowed to copy. It may be remembered that in our first volume we gave some account of Siebeck—how he was but a gardener of humble origin—how, imbued with a love of his profession, he strove to understand and master it,—and how, succeeding,—such efforts almost always succeed,—wealth and fame followed in his footsteps, and culminated in his having the degree of L. L. D. conferred on him by a distinguished German University.

The piece of ground covered by this plan, is only about 250 feet square; yet the most is so made of it by judicious massing of shrubbery, that walks, arbors, seats, lawn and flowers are as freely employed as though the place were double the size, and variety of the most pleasing character follows every footstep through the grounds. We have added ourselves to the original plan a small tract in the rear, showing how a small vegetable or fruit garden may be combined, without destroying the pleasing effects of well arranged grounds.

As our aim is to furnish hints rather than a model for copying, we give no details of the plan, as the leading points will be apparent to all.

LEARNED LATIN.

It is curious to note that in proportion to one's ignorance is the tendency to use big words. The plainer the language generally is, the more sense we are likely to find behind it.

In Germantown, at the corner of Fisher's Lane, is a very old cemetery. In building the wall around it, some artist carved a death's head and cross bones, and beneath it the latin inscription *Memento mori*, only it is rendered "memen do mory." If he had put the idea in plain English he would not have made such a ridiculous mess of it.

We are reminded of this by reading in a contemporary, that a correspondent at Knoxville, Iowa, is using the "Lorbus, do Mestica," as a stock for the Pear. The Editor seems in doubt what to make of it, and tells his readers the "Juneberry" is meant.

Pity when people mean to write about such things as Mountain Ashes, or Serviceberries they cannot say so in plain language. It is in such cases as these that a "little learning is a dangerous thing."

SCRAPS AND QUERIES.

CAMELLIA CULTURE.—J. W. S., Alton, Ills., writes: In the February number of the *Gardener's Monthly*, I find an article on the "Greenhouse of Mrs. Geo. W. Carpenter," and speaking of Camellias says, "found they had been watered with lime water." Will you do me the favor to inform me *how often* and *in what proportion* to use it? The Camellia is one of my favorites, and anything that will assist me in bringing them to perfection, I accept with thanks. Raised mine in a pot without fire heat; come later, but got finer flowers; have a white one in bloom now, (C. alba pleno) should like for you to see it; *think it perfect*."

[We sent the above to the correspondent referred to, and have the following note from him: "In reply to the inquiries of your correspondent from Alton, Ills., in regard to the watering of Camellias with lime water, the facts are as

follows: The plants are grown in large pots, and have been in them undisturbed for several years; a large reservoir on the place, containing 500 gallons of water, receives annually, about 3 bushels of lime; before watering the plants, the lime is usually well stirred up with the water, allowing it to settle before use. Lime water was first used to kill worms in the soil, which it effectually did. It has since been continued regularly, the thriving, healthy appearance of both roots and branches, seeming to warrant its use."]

GLADIOLUS BULBS.—With some remarkably nice bulbs, Mr. Such, of South Amboy, N. J., sends us the following note: "I have seen it mentioned, that Gladiolus Bulbs should be kept during winter in the same warm temperature as is calculated to keep Tuberose bulbs in good condition. But the fact is, the cooler we keep

Gladiolus bulbs, short of freezing, the better; a warm, moist atmosphere will surely start them into untimely growth, and heat without moisture, will shrivel the bulbs, and prevent vigorous growth.

By this mail, I send you a small Gladiolus bulb, which is one of the many thousands that I have kept cool all the winter, and you will see that it is in perfect order. I also send two Tuberose bulbs, which have been kept warm, and these also are in perfect order.

By-the-way, I think you will consider these Tuberose bulbs tolerably good specimens, and when you make that promised visit, will not turn up your nose at our sandy soil, that produces such good results."

WINTER FLOW OF SAP.—The *Ohio Farmer* says: "Modern research has established the fact, that in the winter, vegetable life is not suspended, as has been generally supposed. The roots, especially, grow, and there is a general, though slow circulation of sap throughout the season."

The *Farmer* must look out, or it will get some hard knocks for such heresy. It is nearly 20 years since the Editor of this journal started the public on this track of modern research, but the stake burners have not yet done with him, and the gallant Colonel of the *Farmer* may share the scorching, if he gets too close.

Of course the dullest wood chopper knows that there is no "sap" in the Maple at the fall of the leaf, and that there is a gradual increase up to sugar boiling time; but with the orthodox there is no truth possible, but that writ ten in the books. They say "the warm suns in spring, start the sap's flow"—and it therefore must be so.

DEATH OF A GRAPE VINE.—J. W., *Pittsburg, Pa.*, writes: "We planted last spring about 20 varieties of grapes, in a cold grapery; they all grew very well, but the Decan's Superb was the champion grower. We had a hard frost in the latter part of October, which killed it to the ground, while the others were but slightly injured. Please state in the *Monthly* how we can manage a new vine this year, to prevent the same (to us mournful) result."

P. S. Has pinching in the laterals, the first year, any effect in ripening the wood?

[We do not think Decan's Superb is a tenderer variety than any other grape. Perhaps mice

had been feeding badly on the roots and to some extent on the others "slightly" injured. At Pittsburg, vines ought not to be injured by frost under a glass covering. If they are really so hurt, bending down in early winter and covering with earth, would be a protection. Pinching in the laterals, by preventing a mass of leaves from growing so thickly as to smother one another, is an aid in ripening the wood. Decan's Superb, makes a beautiful "show" when the fruit is ripe, but is not much to eat.]

THE CHINESE YAM AS AN ORNAMENTAL PLANT.—We entirely agree with the following from H. C. B., *Painesville, O.*: "An article on page 38, No. 2 of the *Monthly*, speaks of Chinese Yam as a good climber. I have long admired it. It grows rapidly, has a heart-shaped leaf, of a rich glossy green, and is never, so far as I have noticed infested by insects. It is perfectly hardy. The small tubers which form on the vines, fall to the ground in the fall, and after freezing and thawing all winter, vegetate freely in the spring. The Yam, whether old or young, never needs protection."

NURSERY RULES.—H. M. E., *Marietta, Pa.*, asks for the "standards of nursery rules" for digging trees; especially as to the height of trees. "Whether height is calculated from the ground up, or is the root included in the measurements."

[Height is included only from the ground up. In fact in theory, the act of purchase is for the trees as they stand in the ground, and anything else that is done by the seller, is 'for account of and at the risk of the purchaser.' In digging, packing, shipping and freighting, from the commencement of digging, to the customers door, the seller acts as the agent of the purchaser; packing, charges and freight, when paid in advance, being added to the bill. Sometimes nurserymen volunteer to make no charge for these things, in which case, the legal effect is probably to assume all responsibility to the customer's door,—but the rule is to dig and ship at the risk of the buyer, and to charge for the agency in the matter—of course feeling it to be the seller's interest to charge as little as possible, and barely enough to give a claim to a mere agency in the matter.]

THE BUFFUM PEAR.—F., *Bordentown, N. J.* "I notice in articles on Pear culture, certain distances are recommended for Pears; ought not

the distances to be regulated by the habit of the tree? I propose to plant a great many Buffums this spring. Might I not plant them closer on account of their very upright growth?"

[We think not. When they come into bearing they bend over pretty much all alike. Certainly the Buffum, when it comes into full bearing, is as round headed as an apple tree.]

TOMATO CULTURE.—We have received from J. Payne Low a circular in which some excellent hints on Tomato raising and Tomato varieties are given.

COL. WILDER'S ALPINE CROSSES.—In a paper on Alpines last winter, we incidentally referred to Col. Wilder's curious crosses, with Alpine and Virginian breeds of strawberries. In a private letter, with other things, we have some further account of them, which we know Mr. Wilder's love of the subject will pardon us for extracting for our readers:

"My seedling strawberries 8 months from seed, are now in full bloom, and I can assure you that they are the most interesting experiments in crossing I have met yet, with Wilson, with Royal Hautbois, crosses with Hautbois foliage and Wilson flower. Pistillate No. 60, crosses with Napoleon III, produces a noble truss of pistillate flowers. Napoleon III crossed with Hautbois, brings a new type of Hautbois, with very dark, round foliage and large flowers. Wilson crossed with Triumph, some plants are hermaphrodite and others pistillate. Napoleon III and Triumph, glorious plant with splendid trusses. Jucunda by Napoleon III, very promising, &c., &c. But what will you say to the fact, that some of the crosses of varieties by the Hautbois are regular mules. In addition, I have some forty pots more to come into bloom."

INTELLIGENT HORTICULTURE.—A Canadian correspondent, in a private letter to the Editor, has some excellent ideas, one of which we are sure we shall be pardoned for extracting. He says:

"We have fewer carefully trained scientific minds, faithfully and earnestly devoting themselves to this, the most interesting and important of all material subjects, than to any other scientific subject. True, it can hardly be reduced to a system of rules and reasons like the exacter sciences; but look at the hundreds, de-

voting themselves to the subject of the constitution of the sun and moon and planets, whilst only one here and there devotes himself (I mean of the men with big brains) to the nearer theme—by exact and repeated experiments of terrestrial plant life, and of the conditions of its growth, and of the elements which nourish it, and of the best mode of their combination, of the exact effects of light, (by itself) and of heat, (by itself) and of light and heat conjoined."

We think the fault has in a great measure lain with ourselves, that there are not more intelligent horticulturists. When we started the *Gardener's Monthly*, we were warned not to make it "too learned." It was said, ours was a "practical people," who only cared to know "how to eat, drink and be clothed." We have, however, steadily kept on in our track, endeavoring to stimulate thought and mind, and elevate instead of going down to the level of the masses; and we feel amply rewarded.

IRISH JUNIPERS.—John B., *Pittsburg, Pa.* "How can I best keep Irish Junipers from becoming scraggy? Mine were very pretty till this season, when the snow has bent them apart, and unless they come up again, their beauty will be spoiled?"

[Irish Junipers should never be allowed to grow up with more than one leader. All side shoots that are strong and seem likely to contest the leadership, should be cut away every year; then the plants will retain their great beauty for many years.

This is true of all similar evergreens; only permit one leading shoot to grow.]

THE SAP'S ASCENT.—J., *Tarrytown, N. Y.* "Conversing with an intelligent gardener last week, the subject turned on the cause of Sap's ascent. I have always supposed it to be by capillary attraction. One part the drier, attracting from the other not so dry. But he attributed it to heat, and instanced a grape forcing in a vinery. Growth commenced as soon as heat was applied. Which is right?"

[Neither, although there is an approach to truth in both. Heat, nor capillary attraction, would make the sap flow through a dead stick. It will not do to reason of living things as we do of dead ones. Nothing is definitely known as to the cause of the flow of the sap, except that it is some way or another connected with the conver-

sion of heat into other forms, which is the peculiar mission of vitality.]

COVERING OLD STUMPS.—*M. P., Monocacy, Md.*—"We have some old stumps on our grounds which we are anxious to have covered with vines; which are the best for this purpose?"

[The size or extent of the stumps are not stated, but supposing them to be the remains of single trees, and about two or three feet from the ground, we would in your latitude use the English Evergreen Ivy for some, and the Evergreen Japan Honeysuckle for others. Where fall and summer effect only is desired, the Virginia Creeper is a pretty thing, and for large stumps or trunks the Trumpet vine.]

VITALIZED COMPOUND.—*Lister Bros.,* send us a package of a plant fertilizer, which by its odor, we should judge ought to be good to make plants grow. These portable manures are very handy for pot plants in windows and towns where heavier manures are hard to get.

But why should these parlor manures have such atrocious smells. When our physicians dose us, they sugar-coat the bitter pills; and surely our plant feeders might mix something with their "compounds" to give them a sweet savor if nothing more.

FOREIGN GRAPES IN THE OPEN AIR.—"Vitis," *Berksville Junction, Va.*—"I am a recent settler in this section of country, and believe, from all I can learn, that this is an excellent country for the grape. The climate is so much milder than my northern, (Manchester, N. H.,) that I have an idea to set out for experiment, some foreign varieties. What varieties of these are likely to do best?"

[None of them. It is not a question of climate, so far as temperature is concerned, which prevents the out-door culture of the foreign grape, but of atmospheric moisture. The further South, so much the worse for the grape, except in high elevations. The foreign grape would do better in Canada than with you. But if you will try, get *Garden Chasselas*, *Allen's Hybrid* or *Diana Hamburg*, *Royal Muscadine*, *Montgomery*, *Weehawken* or others such, which have been raised from seed, either from or near infancy in the open air, and may probably be a little more able to endure our climate than those like *Black Hamburg* and others which have been long raised under glass.]

YELLOW-FLOWERED WINDOW PLANTS.—*R. P. S., Philada.,* asks: "I have never much admired yellow as a color, but have had much enjoyment from a pot of yellow *Oxalis* this winter, with our other flowers. Is there any other plant which requires little skill to manage, and which would flower freely in a window during winter?"

[Try *Genista Canariensis*, *Coronilla glauca* and *Wallflowers*.

APPLES FOR SOUTHERN VIRGINIA.—"Vitis," *Burkesville, Va.,* asks: "What would you name as the best 12 Apples to plant in this section of country?"

[Virginia has had other matters to attend to for the past ten years, and the materials at hand are not favorable to making up the best list; but the following will be found a good one: *Albemarle Pippin*, *Smith's Cider*, *Benoni*, *Monmouth Pippin*, *Northern Spy*, *Pryor's Red*, *Domine*, *Early Harvest*, *Early Strawberry*, *Gravenstein*, *Maiden's Blush*, *Limber Twig*. This will give a preponderance of early winter fruit, which will probably be best for your section.]

THE BEST STRAWBERRY.—*B. B., Leesburg, Va.*—"I have been anxiously awaiting some decision as to the best Strawberry to plant, and have carefully watched yours and other journals, but feel still at a loss. Please advise me?"

[Well! we are waiting for "that same" decision, but the farther we go, the worse we fare! The truth is, the "best" will never be known, and you had better be satisfied with some known to be tolerably good fellows. Try any of the following that you can get easily, treat them well, and you will not go far wrong. *Wilson's Albany*, *Triomphe de Gand*, *Jucunda*, *Agriculturist*, *La Constante*, *Fillmore*, *Downer's Prolific*, *Chas. Downing*, or even *Hovey's Seedling*, if fertilized.]

MISSOURI MAMMOTH BLACKBERRY.—A correspondent from *Wilmington, O.,* says: "I feel badly sold by my investment in this miserable fruit last season, and feel half disposed to quarrel with your horticultural Journals for puffing such trash. True, I do not remember the *Gardener's Monthly* advocating it strongly, but I do not, at any rate remember any word that it said against it."

[Most certainly our correspondent never saw

anything from our pen in the *Monthly*, in favor of this fruit, simply because we knew nothing about it. It is not our habit to either praise or condemn without evidence. Whenever there is a chance of any new thing being good, we try to get the earliest information; and the only reason we did not say anything of it was, that we could find no one of character who had seen it. We may perhaps seem slow, because we do not give information without facts to warrant it; but that is our way. We have no sympathy with those who have no patience to wait for evidence, and who run after every new notion that comes up, and find they have been swindled. Instead of crying to the newspaper *Hercules* to help them, let them help themselves and learn to wait. Our advice to those who have lost money by the *Missouri Mammoth*, is to "grin and bear it," and learn wisdom for next time.]

VINE CULTURE IN THE UNITED STATES.—In *Flagg's* recent tour amongst the vineyards of Europe, are many useful suggestions. He thinks the great foe to the success of grape culture in the United States, has been long pruning and bad drainage. On the last point, our readers know that he is most certainly right; our maxim has been that ground can scarcely be too dry to grow good grapes.

THE PARKS OF CHICAGO, together, comprise 3,500 acres. *Riverside Park* alone, has 1600. *Mr. Olmstead* of New York has, we believe, something to do with the last, which means that the *Chicagoans* will have something to be proud of.

GENEVA NURSERIES.—These are attaining mammoth proportions. There are eighteen firms, and near one thousand acres under nursery culture. The soil is said to be remarkably well adapted to the growth of trees.

GREENHOUSES OF JOS. PERKINS, ESQ., AT CLEVELAND, OHIO.—A *Cleveland paper* describes these as very fine. The main conservatory is a curvilinear structure. The regular planthouses open into it. One is for *Camellias*, another *Roses*, and another for tropical plants. *George Morgan* is gardener, and the health and beauty of the plants are highly spoken of.

PEAR CULTURE.—At a late meeting of the *Central Illinois Horticultural Society*, after an essay on Pear culture by *Parker Earle*, a discussion took place on the subject. There has been a persistent endeavor on the part of some people, to confound neglected trees in grass, with well cultivated trees in grass, and even those who do understand the difference as we have explained it, regret that we take the course "because people will mis-understand." At this discussion, *Mr. Parker Earle* was asked whether some one who had starved his trees, had not given up grass. *Mr. E.* very properly replied. "I presume he did, but we do not know that those persons had carried out *Mr. Meehan's* ideas; thinks *Mr. Meehan* has been misrepresented. And *Mr. Dunlap* was in just about the same condition with regard to pears as his friend *Earle*; thought he once knew all about it, but was now a student; thinks *Mr. Meehan's* practice has not been understood; has ninety dwarf pears on a lawn seeded to clover and blue grass. These trees do not blight; some varieties bear well,—for instance, the *Bartlett*, *Belle Lucrative*, *Beurre Diel*, *Beurre Gobault*, *Louise Bonne*, *Swan's Orange*, *Steven's Genessee*, etc. Some varieties, such as *Madeline* and white *Doyenne*, crack there just as badly as anywhere. The lawn has often been top dressed with manure; the grass is cut and fed to his teams. Does not prune at all; wants to learn first when and where to do it. Many of his varieties are worthless, and would probably not bear anywhere. The trees are healthy, and those first mentioned bear profitable crops. He has several hundred standard trees planted in orchard, which are both cultivated and in grass; many of them have been killed by blight the past season; would like to have some one tell him how to prevent it."

HOT WATER.—In heating large establishments, where by the use of ordinary flues many fires would be required, there is considerable saving in the use of hot-water. Even where cost is some object, the superior neatness of hot-water arrangements, will often decide the question of their adoption. In private gardens, where pleasure is or should always be more of an object than profit, the use of hot-water cannot well be dispensed with. For small houses, however, or for houses especially intended for profit, hot-water is frequently more costly, and less effective than when heated by hot air. A small propaga-

ting house is best built narrow, with a flue running through it, and an arched chamber of some thin material—one thickness of brick for instance—built over the flue; wood must not be used anywhere near this chamber, as confined heat will in time set the wood on fire. A pit built on the top of this chamber and filled with sand, will make one of the cheapest and best of propagating arrangements.

MR. SUEL FOSTER, of Muscatine, Iowa, says: "Farmers! plant Larch. Plant 5,000 of these trees instead of one Mexican Everbearing strawberry, and try to take such agricultural papers as will caution you against all such humbugs."

[A very good question for a village debating society is, "what is a humbug?" Mr. Foster does not care for everbearing strawberries, therefore those who do are clearly humbugs. A "humbug" at Muscatine, is "one who does not think as Mr. Foster thinks." Now what are they in other places?]

A SCHOOL FOR HORTICULTURE.—Miss Emma Marwedel is to open a Horticultural School for women, at Brentwood, L. Island. House-keeping is also to be taught. Three years are proposed for a course; bouquets, wreaths, flowers, &c., will be made up. The money thus obtained, will constitute a large portion of the revenues of the school.

THE LARCH RING.—Dr. Michener, in the *Practical Farmer*, describes a very curious ring which has four years existed round a Larch tree he has. The ring is about one foot wide, and advances that much every year, killing the grass as it grows; the abandoned, or last year's part, then resumes the growth of grass.

Some would say this was caused by the development of a fungus under the ground; but Dr. M. is one of our leading mycologists, and he does not give this as a cause. It is a curious subject.

A LARGE IOWA ORCHARD.—Suel Foster has an apple orchard of sixty acres, twelve years old. He recommends Benoni, Duchess of Oldenburg and Maiden's Blush among the early sorts, and Jonathan, Ben Davis and Willow for winter.

THE BLUE ASH.—A correspondent of the *Country Gentleman*, speaks of the Blue Ash (*Fraxinus quadrangulata*). He says that it grows fast, is almost as durable as Walnut, and is as strong as the best White Ash; it requires a deep rich soil.

DENDROBIUM NOBILE.—A magnificent plant of this fine orchid has recently been flowered by Mr. Newett, gardener to H. P. McKean Esq., near Philadelphia. It had thirty stems and two hundred and twenty blossoms. Can any one beat this? A *D. densiflorum* was also beautifully in bloom.

UTAH CURRANTS, appear to be all varieties of *Ribes aureum*, the common Missouri currant, but they are all superior to the original.

PAPAW BARK, is said by a correspondent of the *Rural World*, to be equal to Linden or Bast bark for tying. It is macerated in water, when the layers of liber easily separated.

LILIUM AURATUM.—This ought soon to become common. Importations from Japan are not infrequent. At a recent sale in New York, some thousand sold at auction at an average of 25 cents each. On March 23d, 800 more were sold, but we did not hear the price of these.

NEW HOT-BED SASH.—Cridge & Sons of Allegheny, have invented a new sash, in which the glass is firmly held without putty.

The arrangement is simple, and a broken glass can be replaced in a very few minutes.

SEEDLING GERANIUM. H., McGregor, Iowa. "I send you by mail, specimens of flowers of a seedling Geranium. The ones on the bit of glass shows the size and form, and the pressed one, the color of the flowers, which I think very rich, and of a shade I have never before seen. The plant is a cross between Christine and one with white flowers and pink centre, with leaves very darkly marked. The seeds were planted last May in a cold frame, this plant bloomed about the first of December, and is now about 7 or 8 inches; having the compact habit and leaves of the Christine, with the large size and

shape of flowers of the white blooming one. What do you think of it?

[The flower was very much like Magenta Queen, one of our best bedding varieties.

The raising of new varieties of these and similar plants, is a very interesting part of gardening, and we give the note of our correspondent in full, in the hope that it may incite others to experiment in the same way.]

CURIOUS MOVEMENT IN THE FLOWERS OF GENISTA TINCTORIA.—This plant grows wild in Massachusetts as well as in Europe. Rev. Geo. Henslow has noticed in the European plant, that the claws of the keel petal turn backwards when touched by an insect, thereby exposing the stamens and pistils to the fertilizing agency of insects.

WORK ON GREENHOUSE PLANTS.—R. B. D., Rochester, says: "I have got Sweet's *Botanical Cultivator*. What is the best work on greenhouse plants?"

[There are no very recent works on exactly what our correspondent wants; but those of Mr. Rand, published by J. E. Tilton & Co., are the nearest approach to them.]

BOOKS OF REFERENCE FOR NURSERYMEN.—R. B. D., Rochester, N. Y. "Are there any better works of reference than Loudon's *Arboretum*?"

[Unfortunately not. The increase of periodical literature has made book making by hard students unprofitable. Any one, with ready use of the pen, can "make a book" with a file of periodicals before him; true, they teach nothing but what the average reading mind knows already, and with these such books are not bought, or if bought not estimated, and they soon die out of mind. Yet there are just enough to whom an indifferent book is as good as one of original thought and research, and this just enough to make such good works unprofitable. Yet we think there are more persons who can appreciate the genuine article than good authors believe. The success of Hoopes' *Book of Evergreens*, is a good proof of this. We believe if men of real knowledge would enter the field against the mere hack writer, they would find the public really appreciated good books]

A NEW VEGETABLE—POLYMNIA EDULIS.—In the southwestern States is found a coarse weed, with pale yellowish flowers, called the "Leaf Cup," botanically *Polymnia wedalia*, belonging to the composite or Aster tribe of plants. A species—*Polymnia edulis* has been introduced into Europe from Bolivia, having roots like the Dahlia, which also belongs to the composite family, and which are said to be almost or quite as good as sweet potatoes when cooked. 24 lbs. weight can be had from one plant. It is advertised in Europe at 4 cents per seed, and we suppose will soon be introduced here.

THORNLESS HONEY LOCUST.—G. F., South Pass, Ills. This is the *Gleditsia inermis* of old Botanists, but now known to be raised at times from seed of *G. triacanthos*, the common kind. Our correspondent makes a good suggestion, that it makes a handsomer lawn tree than the thorny variety.

FUCHSIA COCCINEA.—Dr. Hooker, in the journal of the Linnæan Society just issued, makes the remarkable discovery that the *Botanical Magazine* in 1789 figured the *Fuchsia magellanica* as the *Fuchsia coccinea*. Almost all the plants in cultivation are of this species, having the leaves tapering at the base. The true *F. coccinea*, has the leaves heart shaped at the base. The common one is a native of Chili; but the country of the true *F. coccinea*, has never been found.

SEEDS FROM MR. BRIDGEMAN.—Mr. B., whose advertisement appears in our regular columns, sends a few samples, which suggest to us to note how great are the advantages which our modern amateurs have over the florists of the past age, in learning what things are, and how to grow them. Formerly the bare name was on each seed package; now a neat label with a complete history goes on each. The following is a sample:

CENTRANTHUS MACROSIPHON.

Nat. Ord., Valerianaceæ. Linn., Monandria. Digynia. Hardy Annual. 1½ ft. Fl. bright rose. June to August. Native of Grenada. Introduced 1849.

A showy annual for large beds and borders. Sow out of doors in any good soil, in March or April, and cover lightly. For late flowering, seed may also be sown in May. Succeeds best in light soil.

BOOKS, CATALOGUES, &C.

PROCEEDINGS OF THE TWELFTH SESSION OF THE AMERICAN POMOLOGICAL SOCIETY. Held in Philadelphia, September 1869.

This, at first glance, does not seem so full as some which have before appeared; but a close examination shows how much labor has been spent on it by the Secretary, and how well the matter in his hands has been sifted,—or as a good housewife would say, “boiled down.” It is, we think, one of the most valuable of the series.

President Wilder's address, which was so well received at its delivery, is still more interesting in print, where we have time to take in all the points bearing on the progress of fruit culture. The Treasurer's Report,—a sure test of the success of a society,—shows a prosperous state of affairs.

The discussions at the session are briefly but pithily reported. A feature of this session is, that chiefly the newer fruits were discussed, as the merits of the older ones, as adapted to different sections of the union, were gone over by the Fruit Committee which met in New York, in February previous, whose report was adopted.

To those who attended the Convention, the most interesting part of these proceedings will probably be the extracts from correspondence and reports of Committees.

Amongst other good ideas, we glean the following facts: The foreign fruit Committee, report on many new varieties; some bad, others indifferent, and a few “very good” to “best.” Amongst those in Pears are *Andre Desportes*, an early sort; *Beurre Dumont*; *Louise Bonne de Printemps*, figured in our second volume, ripening in February. Foreign Grapes, *Mrs. Pince's Black Muscat* “will prove to be the finest late grape,” which is risking much to say; *Due de Magenta*, black, “two weeks earlier than Black Hamburg;” *Early Smyrna Frontignac*, earliest of this class; *Jura Black Muscat*, “valuable;” *Champion*, “better than Black Hamburg,” which, as the newspapers say, is important if true. Amongst Foreign Strawberries, *Perpetual Pine* gets good praise. Of Apples, many are named, of which a “few will be important additions to the catalogue of useful sorts,” say the Committee. Only descriptions are given; no opinions being hazarded as to which the “most useful sorts” will apply. In Pears there is less

reserve. The Committee believe *Foot's Seckel* “is really a first-class Pear;” *Mount Vernon* “ranks as best;” *Dr. Reeder* is “valuable for amateurs,” probably because it is “small” as well as “delicious;” *Mary* is a “very good July Pear.” *Sarah* is “nearly best.” *Redfield* is an Utah seedling, like and ripening with *Bartlett*; *Sam Brown*, nearly best. The only one which the Committee ventured to call *best*, was one from Salem, N. J., called *Mannington*, a “small red and yellow fruit.”

The “great fight” is generally about Grapes. The Committee seemed to feel they that they were walking over a battle-field, and all the characters are given with a “said to be” reserve. Of Walter they say, however, unconditionally, “promising well.”

Of Strawberries which “promise to be valuable,” are President Wilder, Charles Downing, Nicanor, Philadelphia, Ida, Barnes', Boyden's 30, Moore, Michigan, Lady of the Lake, Clinton, and America.

Of Raspberries, *Mrs. Wood* is said to be *double the size* of the common Black-cap; and the “McCormick, Miami, or Mammoth Cluster,” is deemed “valuable.”

The correspondence is very valuable, but to which only a perusal will do justice.

Members get the volume free. Two dollars sent to Thomas P. James, Cambridge, Mass., will entitle one to membership.

FROST & CO.'S GENERAL CATALOGUE. Rochester, N. Y.

Frost & Co., in sending this say: “We are very anxious to have as correct a catalogue as possible, but works of reference are scarce, and we should be much obliged if you would make any corrections you may note.” The catalogue referred to is so remarkably creditable to the getter up of it, that only for this note we might have simply passed it by with the general commendation that it was “well done.” Certainly the errors are not more numerous than the “types” might be charged with. But as we are asked to criticize, and as we note a few errors, which though perhaps trifling, may, as *accuracy* is a good thing to aim at, point them out, especially as the said errors are very often met with.

Cratægus oxyacantha should be *oxyacantha*, having reference to its sharp spines; *Liquidam-*

ber should be *Liquidambar* (a very common error); *Sorbus vestata* should be *vestita* (but this is probably a typographical error); *Virgilea* should be *Virgilia*. But really this should be *Cladastris*. *Rafinesque* gave it this name, but in former times American botanists were not regarded by European men of science with as much veneration as they deserved. The tree has subsequently been proved to be not a *Virgilia*, and that *Rafinesque* was right in making it distinct. *Cladastris tinctora* is the right name for the Yellow Wood. *Thuja gigantea*, may or may not be correct. The real *Thuja gigantea* is no great acquisition to our list of hardy plants; but nine-tenths of all the “*Thuja gigantea*” in culture are *Libocedrus decurrens*, which is a good thing. We pointed out the difference in our first volume, but the truth progresses slowly. *Wellingtonia* should be *Sequoia*. The name *Wellingtonia* was given when the plant was supposed to be distinct from *Sequoia*,—which it is now conceded not to be.

These are very few corrections to be made in so very large and full a catalogue.

GRAPE CULTURE AT ERIE.

We have before us an address delivered at Erie, before the Lake Shore Grape Growers' Society, Oct. 15, 1869, by Mr. Griffith. It is a very elaborate and interesting document, giving pretty much all that is popularly known of Grape culture and incidental matters up to the present time.

THE AMERICAN NATURALIST FOR MARCH.

This is one of the most interesting of the series. If any one has thought the articles, valuable as they have been, were not varied or numerous enough, they will find it corrected now. Botany, Geology, Zoology, Anthropology, and other branches of science, receive full attention.

JOHN SAUL'S DESCRIPTIVE CATALOGUE OF PLANTS. Washington, D. C.

Until lately the idea of colored illustrations in Nursery catalogues was not thought of. But now we are pleased to see that our leading nurserymen have taken much pains to make them attractive. Among the finest in this respect is one of Mr. Saul now before us; he has a colored plate representing the *Pelargonium Andrew Henderson*. The *Geranium* makes a flower as large as the *Hydrangea*. As a work of art, the picture is superb.

THE PRAIRIE FARMER ANNUAL FOR 1870.

This comes late to our table. It contains articles by L. F. Allen, Dr. Hull, Sanford Howard, Dr. Warder, L. B. Arnold, Edgar Sanders, and has a list of the Nurserymen and Implement Makers of the United States.

NURSERY CATALOGUES.

In our last, we gave a very full list of Nursery Catalogues. The following have since been received:—W. J. Hesser, Plattsmouth, Neb.; D. W. Sargent, Rochester, N. Y.; B. M. Watson, Plymouth, Mass.; T. Mackenzie, Philadelphia; L. Menand, Albany, N. Y.; Bennett & Davidson, Flatbush, L. I.; Bridgeman & Son, N. Y.; W. Mann, Bangor, Me.; J. L. Galloway, Milford, Ohio; J. R. & A. Murdoch, Pittsburgh, Pa.; Michel, Bro. & Kern, St. Louis, Mo.; Dexter Snow, Chicopee, Mass.; Mahlon Moon, Morrisville, Pa.; Ferre, Batchelder & Co., Springfield, Mass.; F. L. Perry, Canandaigua, N. Y.; M. B. Bateham, Painesville, O.; S. B. Conover, New York; T. McElroy, New York; William Parry, Cinnaminson, N. J.; L. Ellsworth & Co., Naperville, Ills.; M. H. Lewis, Sandusky, O.; J. M. Jordan, St. Louis, Mo.; A. Manning, Reading, Mass.

NEW AND RARE PLANTS.

NEW IVY-LEAVED PELARGONIUMS.—This section,—the *Pelargonium peltatum* of botanists,—has remained for many years apparently resisting all attempts to change it. It has always been a favorite plant in American gardening, and the following, from the *Gardener's Chronicle*, will be read with much interest:

“In regard to the Ivy-leaved Pelargoniums, such a break has been obtained that, in impor-

tance, it amounts to a kind of floral revolution. What Mr. Wills has done in the way of hybridizing the Ivy-leaved kinds after much patient labor, has been imitated by Messrs. Ford and Eckford with results similarly successful, and in *Willsii rosea*, Gem of the Season (Ford), and *Lady Edith* (Eckford), the floral world is put into possession of some valuable acquisitions, having the habit and growth of the Ivy-leaved

varieties added to the novel colored flowers, round and smooth, like those of the zonal kinds. For house decoration these hybrids will be most valuable. In *Compactum* (Turner) and Mr. Lambert (Harman), are obtained two good additions to the variegated Ivy-leaved Pelargoniums. With the exception of *Imperatrice Eugenie* (Downie & Co.), the gold and bronze section has only presented subjects inferior to those already possessed; and of the variegated zonal section, of which new varieties have been sparingly produced as compared with the rush of last year's produce, but two golden-edged varieties have been selected for First-class Certificates, namely, *Macbeth* (Bell & Thorpe), and *Peter Grieve* (E. G. Henderson & Son); and only one silver-edged kind, namely, *Lass of Gowrie* (same). Of the ordinary variegated section, *Bright Star* (Turner) and the white-flowered *Waltham Bride* (W. Paul), are both good, the leaf and foliage effective, the habit compact, and yet robust. That useful section most requiring improvement, the golden-leaved varieties, has shown no advance on what we already possessed.

SALVIA SPLENDENS VARIEGATA.—In the collection of Robert Buist, Sr., is one of the most promising variegated plants we have seen. No one can do without the brilliant scarlet of this splendid variety in fall gardening; and the effect of this rich color must certainly be heightened by the rich variegation of the leaves.

VIOLA CORNUTA ALBA.—A very pretty introduction was the horned violet. Its blue flowers being produced all summer in our flower borders. A white variety has been raised in England.

NEW PLANTS.—In a beautiful little catalogue now before us, from Thos. J. Mackenzie's establishment, we find many plants, of which notices from foreign journals have from time to time appeared in our columns. Amongst these we notice *Alocasia Jenningsii*, *Scutellaria mocciniana*, *Bouvardia jasminoides*, *Viola cornuta alba*, *Clerodendron Balfouri*, besides many of the new *Coleus* now becoming so popular.

GLADIOLUS CRUENTUS.—A strikingly handsome species of Cornflag, growing from two to three feet high, with large linear-ensiform leaves and a distichous spike of numerous large broadly

campanulate, bright blood-red flowers, with blunt obovate emarginate segments, the two lateral lower ones marked by a white transverse red-spotted zone running out into a lanceolate stripe. Introduced from Natal by Mr. Bull, and now in the hands of Messrs. Standish & Co., who have successfully employed it for cross-breeding purposes, and have now a large crop of seedlings obtained from it.—*Florist & Pom.*

THE GREAT TREE OF CALIFORNIA.—This has done well only in special localities in the United States. In Europe it does better. A Golden Variegated variety of it is one of the recent English novelties.

ALOE CROUCHERI.—This very handsome greenhouse succulent, somewhat resembles *A. acinaecifolia* in habit, being stemless, with spreading ligulate unequally trigonous leaves, a foot long, dark green, marked with oblong whitish spots, and bearing branched scapes, with numerous long racemes of pendent curved tubular flowers, pale rose-colored in the lower half, white with green veins above. It has long been cultivated at Kew; origin unknown, and is now named in compliment to Mr. Croucher, "under whose care the succulent plants of the Royal Garden are placed, and to whose zeal and especial love for this class of plants the collection owes much of its value and interest." It belongs to the group *Gasteria*, of which Dr. Hooker remarks: "I suspect it will prove to be as good a genus, both in habit and floral characters, as most of *Lilacæ*."—*Botanical Magazine*.

GYMNOGRAMMA LAUCHEANA GIGANTEA.—A remarkably fine Gold Fern, having the general features of *G. chrysophylla*, but distinguished by its broad leafy decurrent lobulate pinnules, which give it a peculiarly bold aspect. The under surface is of rich deep golden color. It was raised by M. Stelzner of Ghent, and is said to have been obtained by sowing the spores of *G. Lauchiana* mixed with those of *G. Stelzneriana*.—*L'Il. Hort.*

MIMULUS LUTEUS ALBO-MARGINATUS.—A variety of the well-known hardy perennial Monkey-flower, in which the leaf-stalks are rose colored, and the leaves broadly-margined with blush white. It is cultivated in the Belgian gardens.—*Flore des Serres*.

INTELLIGENCE.

PEACH CULTURE.—At a recent meeting of the Vineland, N. J., Agricultural Society, Mr. J. C. Parsons said: "A gentleman at Newport, near Cape May, has an orchard of peach trees 12 years old. On planting, he seeded his ground to clover, in a small circle around the tree. He laid on a compost first, then sowed clover. The clover he does not cut, but allows it to die down and grow again. The circle gradually enlarges itself. Outside of this circle he cultivates the ground. The result is he is not troubled with the borer, and his trees are flourishing. This system might be practiced in Vineland. He will try it himself. It will save much labor of cultivation. Strawberries, if mulched, will give a better crop, though somewhat later. If oat straw is laid on it keeps the fruit clean. Our raspberries and blackberries, if mulched, would last longer in fruit. At the North they are in the habit of mulching with salt hay so thickly as to prevent the growth of weeds."

CHARLES DOWNING.—F. R. Elliott gives, in the *Rural New Yorker*, a deserved tribute to the horticultural labors of Charles Downing. Mr. Downing was born at Newburgh, N. Y., in 1802. He took charge of his deceased father's grounds in 1822, admitting his brother A. J. Downing, into partnership with him as nurseryman, in 1836. This partnership continued only two years, being dissolved by the division of the estate. During over 30 years he has tested on his own grounds, over 2000 varieties of fruits, excluding berries, etc. His recent revision of the "Fruits and Fruit Trees of America," has made this the most complete work of the kind in the world.

THINNING FRUIT.—The *Country Gentleman* points out by a reference to the practice of Dr. Hull, that over blooming injures the subsequent vitality of fruit trees; and from this basis an intelligent argument in favor of thinning out fruit buds and young fruit.

VINELAND PEACHES TO BOSTON.—Last year these went to Boston, by steamer, and netted the shippers \$1 60 per bushel. It is found a cooler way to transport fruit than land carriage.

THE BEURRE D'ANJOU PEAR.—Hon. Marshall P. Wilder thus writes to the *Country Gentleman*: "Its merits increase in my estimation every year. In fact, its use extends over many months. It may be ripened in October by being placed in a temperature of 60°, or it may be to this date, (Feb. 19th,) in perfection, no other conditions being necessary than these of a cool, dry, north cellar, free from frost. Such also is the opinion of Messrs. Ellwanger & Barry, who have just visited me, who also had them in fine order when they left home a few days since. Whether for my own table or for market, I have no variety that surpasses it, if size and excellence are considered; and so generally is it now sought for both in this market and New York, that my crop is always engaged before the time for gathering. The d'Anjou sells in New York readily for twenty-five dollars per barrel, as they come from the trees without selection, and in Boston at this time commands twelve dollars a box of less than a bushel—and excellent and refreshing as the Easter Beurre are from California, my Anjous are in as perfect condition and have kept as well as those."

ORCHARDS OF WESTERN VIRGINIA.—These seem very successful. Mr. T. C. Hubbard in *Michigan Farmer*, names the following as among the most successful orchardists: S. B. Peck, S. R. Sanford, George Ruddiman, J. R. Rowe, M. O'Hara, L. A. Stocking, H. L. Rood, F. Fowler, J. B. Parks, Milo Rowley, B. Moulton, John Ruddiman, H. S. Tyler. Land runs from \$10 to \$100 per acre. The best varieties are—of apples: Red Astrachan, Sweet Bough, Early Harvest, Gravenstein, Fall Pippin, Jersey Sweet, Baldwin, Golden Russett, Yellow Bellflower, King of Tompkins County, Wagener, Seek-no-Further, Tallman Sweet, and Roxbury Russet. Peaches—Early Crawford, Hale's Early, Stump the World, Rareripec and Early York. Pears—Louise Bonne de Jersey, Duchess and Buffum, on quince stock, Bartlett, Flemish Beauty, for standards. Plums—Imperial Gage, Green Gage, Smith's Orleans, Coc's Golden Drop and Washington. Cherries—Early Richmond, May Duke, Elton, Yellow Spanish and Gov. Wood. Grapes—Clinton, Concord and Delaware. Blackberries—Lawton and Black Cap. Strawberries, currants and gooseberries produce abundantly.

PEAR CULTURE IN MISSISSIPPI.—A Correspondent of the *Southern Horticulturist*, says: An old friend of his, living near Natchez or Vicksburg, raised and sold, before the war, \$10,000 worth of Pears per annum, the whole crop selling at from \$5 to \$6 per bushel, and that pears are the most profitable of any crop for their market.

Dr. Swasey, the editor, however says, the blight, and other diseases make pear culture down there, uncertain in good results. Dwarf Pears he thinks much more successful than Standard.

RAISING DOUBLE PETUNIAS.—The *Rochester Express* says of a visit to Vick's flower farm. 'The Petunias have been quadrupled in size and grown double, of various shades. The original flower was very small, white and always single. Now the seed produces large flowers, seventy-five per cent of them double, and of various beautiful shades. The double Petunias produce no seed, and the seed to grow double flowers from all has to be artificially fertilized every morning with pollen from the double flowers, which are cut off for that purpose. This operation requires great care, cutting out all the pollen on the single flowers so soon as they expand. It must also be performed under glass, or dews and rains would wash off the pollen and destroy the seed. Of course double Petunia seed grown in this expensive manner is scarce and high priced.

GRAPE CULTURE IN CALIFORNIA.—Seems profitable. In 1867, a number of Germans, acquainted with grape culture, etc., purchased (for \$2 an acre) some 1260 acres in the valley of the Santa Anna river, Los Angeles county, California. They divided this land into twenty acre lots, with streets between them; certain parts were, of course, reserved for public uses. Furthermore, a town was laid out; each of the original proprietors had one lot in it. At this moment there are a million of bearing vines at that settlement; 100,000 gallons of wine and 10,000 of brandy are made annually, and the association has an agency for their sale in San Francisco.

MIGNONETTE IN LIVING ROOMS.—I have learnt a useful lesson, not from my own practice but from—well, it must come out, from the gardener's wife. About six weeks ago I took home to my wife to place in our living-room a pot of mignonette, then in full flower, and, of

course, gave up all charge of it. Now, under her care, the same plant is to this day carrying quite a respectable appearance, for it has never ceased to flower and give off its perfume. It has stood close to the glass on the window-ledge inside and had no air, for the room is entered from a passage. However, here is the secret of its well-doing; it has had but little water; that is to say, only once a week. When water is given it is taken into another room, and the whole ball of the earth is gently moistened, and the plant returned to the window again. When I contrast the condition of this plant with those in the garden that have had to do the same duty in the rooms of the mansion, I may well say I have learned a useful lesson, for only after a few days mignonette plants return from the house half dead with nothing but yellow leaves. All plants which go for indoor decoration are under the care, for the time being, of one of my active assistants, who, in the case of keeping mignonette in bloom and good health, has simply failed by giving it too much water. Perhaps some others may profit by the lesson taught me.—J. C. C. in *English Journal of Horticulture*.

SUSPENDED ANIMATION.—I have read of trees remaining dormant for a season, but I shall tell of a case that is probably unique of its kind. There used to grow against a wall of my house a Virginian creeper. It was an old plant with a stem thicker than any man's arm, and it spread across to the next house, and my neighbor has as good a share of it as myself. By some accident the stem was broken or cut through—I think it occurred when some workmen were about the place. Well, it was cut down to the ground and the place was paved over for some distance round about, for the roots of the plant were in a yard. Last summer, to my surprise, a strong shoot of Virginian creeper started by the edge of a paving-stone and grew four or five feet. That shoot is now pushing a new growth, and I have no doubt at all that my creeper will be restored on the very spot where it stood before. The story so far may appear nothing extraordinary. I must add that between the disappearance and the reappearance of the plant four years have elapsed. That there may be no mistake about my meaning, let it be understood that we saw nothing of it through four successive summers. I suppose some part of the root, still alive, was quickened by the intensely hot weather of 1868.—JAMES CRUTE in *London Journal of Horticulture*.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The March monthly meeting was held on the 14th inst. It was a fair average exhibition, and afforded many objects of interest.

Perhaps the most attractive feature was the collection of cut Camellias from Mr. T. J. Mackenzie. Not only beautiful in themselves, they were tastefully displayed, which gave them a double charm. Amongst the numerous varieties, we note the following as the best:—A. J. Downing, Peter Mackenzie, Dunlap's Imbricate, Haines' Blush, Wm. Niblo, Double White, Cup of Beauty, Duchess de Orleans, Reine de Fleurs, Archduchess Augusta, Ochroleuca.

Another very attractive thing was the table design of cut flowers from Mr. A. Gibson's gardener. It was in the form of a diminishing series of temples, one above another. We have seen similar designs exhibited, which were really ugly; but the taste and judgment exercised on this, made it one of the most beautiful objects ever exhibited here. The lower "hall" if it might be so termed, was constructed chiefly of Camellias, Azaleas and other heavy, and deep colored flowers; while the upper had mostly sprayey, light colored, and graceful forms. It was no doubt this judicious arrangement which gave so pleasing an effect. On the upper portion we noted that *Spiræa Reevesii*, Sweet Alyssum and Maiden Hair Fern, (*Adiantum Concinnum*) had been freely used. Mr. Dreer had beautiful Dwarf Cinerarias, Pansies and other good things, for which he is so famous. There were several good collections of Azaleas and other plants, but nothing superior to what we have had on former exhibitions.

The vegetable department was chiefly sustained by Mr. G. Huster, gardener to Mr. Heyl; and Mr. Satterthwaite. The former had Cauliflowers, and good lettuce. The chief attraction in Mr. Satterthwaite's collection was in the Radishes and Asparagus. For forced Asparagus, we never saw better; and we were glad to learn from Mr. S. that it had proved one of the most profitable of his market garden crops. In making up his hot beds for early Lettuce and Radishes, he fills the whole bed with strong Asparagus roots. The Lettuce and Radishes are grown on the surface of the same bed. The As-

paragus comes through, and interferes very little with the quantity or quality of the Radishes or growth; while from a dollar to a dollar and a half for a bunch of 25 or 40 stalks, adds considerably to the quantity and quality of the contents of his purse. It should be remembered, however, by those who calculate profits, that Mr. Satterthwaite, notwithstanding his eminence as one of our leading market growers, does nothing with middle men or commission merchants, but with his own hands to the plow, goes himself over the field of the retail market, and of course gets the best prices. President Schaffer has some fair specimens of the Boston market Celery, a dwarf, crisp, sweet variety. Apples were very well represented by Saml. W. Noble, and President Schaffer. The Pennock of the former, was so very fine, that no one is willing to believe in its "running out," and with the noble Fallawater, also exhibited, many lookers on felt proud of these two of "Pennsylvania's favorite sons." Mr. Noble had also a kind we never saw before, called *Kennedy Red*. It is something of the style of Cooper's Redling, but the calyx is still more closed, the basin still shallower, and the whole of the apex with a more "pinched up" appearance. The stalk cavity is also narrower and deeper than Cooper. Another Apple not seen before on our tables was from President Schaffer, though originally a New Jersey Seedling, called the *Sweet Cann*. It is oblong, conic, almost rivalling the Gilliflower in this uncommon form; but the color is light yellow, with numerous black dots; and, on the sunny side, a beautiful light rosy blush. As a sweet apple it is certainly superior to the very popular Talman Sweet.

GENEVA HORTICULTURAL SOCIETY.

We have the following encouraging letter from Geneva, and hope as many as can will reciprocate the Secretary's kind wishes:

"Should you at any time visit this 'benighted region,' we should be only too glad to have you time your visit so as to be at one of our weekly meetings. We have a good room and have full attendance every week, and many active working members. In fact, although only a little over a year old, we are full of vim and vigor. We had two successful exhibitions last summer, and expect to exert ourselves the

coming Spring and Fall. We shall hold an exhibition in June, at which time, the Western New York Horticultural Association will meet with us, and we intend to have a good and profitable time. Want all the assistance we can get from abroad, and trust we shall have a full delegation from Philadelphia, when the meeting is held,

Yours truly,
GEO. S. CONOVER, Cor. Sec.

MICHIGAN STATE POMOLOGICAL SOCIETY.

Officers for 1870.

President, Dr. H. G. Sanders,
Treasurer, Hon. S. S. Fuller,
Secretary, A. T. Linderman,

The office of the Society is at Grand Rapids, Mich., where the next meeting will be held on the 1st. Tuesday in April next.

WESTERN MICHIGAN FRUIT GROWERS CONVENTION.

This meeting, on the 8th of February, at Spring Lake, was one of the best successes of Western Conventions. The town has a Horticultural Hall, and the spirit of Horticulture is not only alive in the place, but decidedly active. The gentlemen who spoke were numerous, and distinguished for their general intelligence. In talking of Peach culture there was a singular unanimity, that high and dry land was the best. The prospects for Peach culture were very good for this region. Whether soil should be poor or rich,—or as to what was the best system of culture, there was no harmony. Grape culture was considered profitable, with the somewhat suspicious condition of "proper varieties" being employed. On Pear culture, Hon. M. Pennoyer detailed some interesting experience. He said: "I claim to be the first in this town to start fruit culture. I made up my mind that I would cultivate a garden and would see what I could do with pears. I had these trees a couple of years when Mr. John W. Cook said to me, 'I want to buy two village lots off your garden.' We agreed on the price and he took them. In the Spring, he went and dug the dirt away around his trees some four or five feet, and went down into the earth three or four feet and filled it up with compost manure. The result was he had a splendid growth of pears for two or three years, and pears that commanded readily 25 cents a piece. They were Duchess d'Angou-

leme. The Seckel, a smaller pear sold at 6 cents a piece, as fast he could pick them from the trees. After he had two or three crops he says to me: "Mr. Pennoyer, how are your pear trees that you took to your farm? Mine are all dying out." Said I, "there is a very good reason for that; you took too much pains with them. You stimulated them too much. You got an unnatural growth, and the frosts of winter struck the branches and the blight runned through the bark to the wood and finally killed the whole tree." I merely set my poor trees in the earth with no manure, and nothing to enrich the soil. I let the grass grow round the trees. I do not allow the grass to be disturbed for anything. I trim and use the knife freely so as to bring the tree into exact proportions, or just the shape my taste may desire. In my opinion that is the true way to raise pear trees.

THE LAKE SHORE GRAPE GROWERS ASSOCIATION.

Met on the 16th of Feb., at North-East, and decided to hold their fall exhibition there. Pruning and training the grape was freely discussed. Messrs. Moss, Babcock, Dodge, Griffith and Hubbard all gave their experience. All had tolerable good success, although their practices all mainly differed from one another.

Mr. Griffith, the retiring President, then thanked the Association for the courtesies extended to him during the past year, and in a happy speech, introduced Mr. Mottier, the President elect.

Vice Presidents, A. S. Moss, Fredonia; J. P. Vincent, Erie; A. S. Couch, Westfield; C. L. Hoag, Lockport; J. A. White, Girard.

Treasurer, Robert Evans, Erie.

Secretary, J. W. Fall, North-East.

Mr. Evans asked that he might be excused, and on motion, he was excused, and Stephen Griffith, Esq., of North-East, substituted in his place.

MUSKINGUM COUNTY (O.) HORTICULTURAL SOCIETY.

This appears to be a very useful and prosperous society. The President's address, (S. Jacobs Moore, Esq.,) is one of the most interesting of many similar documents that have come on to our table this year; and we have laid it by in hopes to be able to use it wholly or in part in the future.

The Gardener's Monthly.

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XII.

MAY, 1870.

New Series, Vol. III. No. 5.

HINTS FOR MAY.

FLOWER GARDEN AND PLEASURE GROUND.

A friend remarked to the writer recently, that he thought it a great mistake that more deciduous material was not employed for ornamental hedges. In some respects we agree with him. Wherever perpetual screens are desired, Evergreens should undoubtedly be chosen. For winter effect also, Evergreen hedges cannot be dispensed with. They give at that season a warmth and cheerfulness, which contrast agreeably with the prevailing bleakness of other things. Again when there are parts of the grounds particularly gay in summer time, evergreen hedges, judiciously placed, tone down other parts of the scenery with excellent taste. But as we usually see them, evergreen hedges are very much out of place,—or if the hedge itself is desirable, much better results would be obtained from deciduous plants, rather than from Evergreens. We have thought that perhaps some account of the best deciduous plants for hedges might not be quite unseasonable; for although too late to plant now, it will serve to lead people who do not know the plants, to make their acquaintance at this growing season.

In our mind, there is nothing more beautiful than a hedge of European Hornbeam, *Carpinus betulus*. It has no flowers of consequence, true; but when it pushes forth its new growth in Spring, there is no one but will admire it. The shoots are then pendulous, and the silvery plaited leaves are laid alternately, the one overlapping the other. As a specimen for lawn adornment, few things are more popular than a good Hornbeam; but in a hedge the effect is heightened. The American Hornbeam does not grow quite so close, but has a special beauty in

its rich colored leaves in fall. There is not a prettier sight in the world, than a hedge of American Arborvitæ in the fall of the year. For colored leaved plants in early summer, the golden leaved variety of *Spiræa opulifolia*, called *S. aurea*, is a grand hedge plant. The leaves are as deep a yellow as the flowers of *Forsythia viridissima*, and have a very unique appearance. We have not known any other *Spiræas* used to any great advantage. The Beech is employed with very good results. Its twiggy branches make a good strong mass, which would almost make a protective fence for a farm. The Cork barked Maple, *Acer campestre*, makes a very strong, and peculiar looking hedge, which is valuable from its looking like nothing else but itself. The European Alder we have heard suggested, but have not seen it so that we could judge practically; but it is worth trial, especially for its very rapid growth. The different Hawthorns are well known for their perfect adaptation to hedge plant purposes. The English, the Washington (*Crataegus cordata*) and the Cockspur (*C. crusgalli*), are the kinds employed. The purple and green leaved Berberries, the Calycanthus or Sweet Shrub, Forsythia or Golden Bell, Altheas, Privets, *Pyrus japonica*, Lilacs and Tamarix, about complete the list.

Evergreen trees and shrubs are generally the safest to move, just before the young buds push, or even after they have started considerably. Those with broad leaves, such as Mahonias, Yews, Euonymus, Tree Box, etc., should be planted only on the north side of buildings, fences, or screens; or under the shade of trees or bushes. The great danger in the latter case is, that they will become too dry in summer, by the roots of the trees abstracting so much moisture from the

soil. This is the common cause of failure with the Rhododendron, Kalmia, and similar evergreens, which it is often attempted to grow under the shade of trees. In this case the proper course of procedure is to dig out the bed, previous to planting the evergreens, two feet deep; filling in or mixing with the natural soil some spongy or fibrous material. This will keep the soil moist and cool through several summers, until the roots of the covering timber, attached to so much loose and moist soil, will be pretty troublesome. When this trouble arises, the way to proceed, is to dig out all around the mass of evergreens two feet deep, severing all the roots that have interloped from the trees—and this should be repeated every few years, or as often as the soil seems to suffer from drought through the summer season. By this care, which in practice is found very trifling, evergreens thrive with a vigor and beauty in our climate that is truly surprising.

The system of bedding plants has called for a new class of character. Formerly viewed as "florist's flower," a Verbena, for instance, would require roundness of form in the individual flower as a first requisite. The lobes of the edges of the border should seem so to overlap each other as to form a perfect circle. Then there should always be an "eye," and the colors of this eye, and the margin beyond, be well defined, and not run gradually into each other. But for bedding purposes, a new and striking shade of color, a free blooming character, neat habit of growth, and power to endure a hot, dry sun, are of far more importance; and the energies of our improvers should be devoted to this end. Seedling raising with this view is very interesting, and we would recommend all our amateur friends to try their hands at it. It is a highly interesting source of gratification even in itself. The way to proceed is to note some variety that approaches nearly to the desired shade, and select seed from these. The next season some flowers will be produced probably deeper, and in a few generations, by careful annual selection each time, the desired shade can be obtained. The old notion that "like produces like," is a fallacy. There is always more or less of difference in the progeny from its progenitors, though most generally so slight that we do not observe it; but a little art added to nature's own process, brings out the variations very remarkably. Where quite different characters to the original are desired, hybridization may be resorted to. For instance, we may

have an excellent habit of growth, and free blooming quality, but a dull colored flower; a kind as nearly allied to the good qualities as possible, but with better colors should be selected with which to fertilize the other. Flowers should be selected for fertilization soon after they have expanded, and the one used as a fertilizer chosen when matured. The flower of the former may then have the latter shaken over it, and fertilization will probably ensue. This is a rough method. The passage of a camel-hair pencil from one flower to another is better; the pollen from the stamens of the one is more certainly carried to the other. When hybridizing is carried on with nicety, it is best entirely to remove the anthers with a pair of scissors before applying the pollen of the other kind. This lessens the chances of self-fertilization, and renders the operation either a certain failure to produce seed at all, or a different race, from its parents by the seeds so produced. New fruits may be produced in the same way. It was at one time supposed all these productions were mules, and though they might produce flowers in their progeny, would not produce fruit, and so the operation would not benefit the pomologist. But this is now found not to be the case. The progeny is sometimes barren, but this is rather the exception than the rule.

The first week in May is usually the time to set out Dahlias. They do best in a trenched soil, say 18 inches deep at least, and prefer cow-manure to any other when it can be obtained. If planted on thin or dry soils, they will not bloom till near the approach of frost, when the chief enjoyment of the Dahlia is lost. It is best, where possible, to plant a duplicate of each kind.

Tuberose should also be planted this month, but they like warm, rich, sandy soil; though, like the Dahlia, they do not like dry soil. As a rule, Tuberose that flowered last fall will not do so this, but the offsets will do so the year after.

FRUIT GARDEN.

Look out for insects. If taken in time and destroyed, they seldom become troublesome. These rebels gain strength only by time. Fruit trees swelling their fruits, are always improved by a soaking of water just before ripening. This is particularly true of the Strawberry. Corn stalks make a good mulch for the Strawberry,—some-

thing is necessary to keep the fruit clean. As fruit trees push out new shoots, pull out vigorous ones, to strengthen the weaker. Thin out fruit where there is danger of over-bearing, which newly planted trees often will do. Blackberries and Raspberries, set out in spring, may kill themselves by overbearing. It is pardonable to wish for some fruit the first year. If a tree seems to be growing freely, some fruit may be left. Cut out Black-knot, or any symptoms of disease that may appear, and as they appear.

VEGETABLE GARDEN.

In the cultivation of garden crops, the hoe and rake, should be kept continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will

show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

CABBAGE, Cauliflower, and Brocoli, are now set out for fall crops, and Endive sown for winter Salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, Beans, and other crops, should be sowed every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, Cucumbers, Corn, Okra, Squash, Beans, Sweet Potatoes, Lima Beans, Pepper, Egg-plants, Tomatoes and other tender vegetables that do not do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparatively high priced, their ends should be charred. This will make them last some years.

COMMUNICATIONS.

LETTERS FROM THE PACIFIC COAST. NO. V.

SAN FRANCISCO, CAL., Oct. 30th, 1869.

Dear Monthly: The markets of a city are very likely to give one an unprejudiced opinion of the resources of the surrounding country; so our first visit in this place was to its market houses, which we found conveniently situated in a central locality, and erected in a very substantial manner. Upon entering the spacious doorways, our attention was immediately directed to the great variety and beauty of the fish department. In my visits to similar places, in many of the larger cities of the Eastern States, I have never seen anything to equal it; and although we noticed many familiar looking types of our own species, yet there existed a peculiar appearance that at once marked them as being distinct, as well as very characteristic of the western waters. Leaving the fish, we next approach the game-dealers, and once more are obliged to con-

less how superior the supply of every description, to the majority of our houses at home. Quails both mountain and valley species; Grouse in variety; Rabbits, or rather Hares of very large size; Wild Ducks of many kinds; Venison in abundance; Terrapins, Oysters, Shrimps, &c., and indeed all in such large quantities, that we were surprised to find one city consuming so great a supply. Nearing the fruit stands, we were soon enjoying the pleasure of examining the fine collection spread out before us; and let me say that it is not alone owing to their very large size, which gives the Californian specimens their well merited celebrity, but to their very beautiful appearance and regularity of shape as well. I understand that curculio marks have been seen here, but with the closest observation, I did not find a single puncture. Apples and pears were offered by the barrel, the specimens in each so exactly alike in size, color, and indeed every other quality, that there could be no possible

choice in the whole lot. Baldwin, Rhode Island Greening and *Æsopus Spitzenberg*, were especially fine in appearance, and Bellefleur enormously large. Large heaps of oranges, limes and lemons, fresh from Mexican plantations, were displayed in profusion, and of first quality in size and color. Cranberries from the East were selling at \$18 per barrel; and a large fruited species of Tree Cranberry from Oregon, not unlike *Viburnum opulus* in appearance, were offered at a less price.

The Grapes made a glorious show, not only in the vast quantity offered for sale, but in size, color and flavor also. The Black Hamburg was fully equal to any specimens of that variety grown under glass at home. It is not however, a popular market fruit here, owing to its tender flesh. The flame colored Tokay is considered the most reliable and profitable kind grown. It is of large size, ripens readily, is a beautiful pink in color, but unfortunately of rather poor quality. Bunches of this variety weighed 1, 2 and 3 pounds each, respectively. The Muscat of Alexandria was remarkably fine, as it always is in the East when properly ripened, and although not very extensively grown, is most excellent in flavor. A very peculiar smallish black grape of foreign parentage, although a native of the State, appeared to be exceedingly popular, judging from the quantity offered for sale. The bunches were very long and somewhat open in structure, after the manner of the Palestine. In quality, it was only medium, but very juicy and refreshing. Numerous other seedlings of the place, of less prominence, were also on sale, but none sufficiently good for extensive cultivation. The vegetable gardeners were offering their productions in a tempting manner, fresh from the surrounding farms. Great heads of luscious looking Cauliflowers, Green-curved Savoy and other Cabbages of large size; String Beans, Peas, Brussel Sprouts, young Radishes; crisp, firm heads of Lettuce; huge bunches of well blanched Celery; Strawberries emitting a delightful fragrance; Potatoes that would assuredly gratify the most insane disciple afflicted with the "potato-mania;" and all this just as the wintry weather is fast locking up our vegetable resources at home.

After leaving the market, we next visit the Mechanic's Institute Fair, which is now in successful operation in the city. Passing by the many objects of interest in the Mechanic arts, we soon arrive at the Horticultural Department,

which is fitted up with considerable taste. Larger specimens may possibly be met with at our fairs at home, but I very much doubt if any collection could possibly comprise a more uniform display than was here shown.

As my time was limited, I hastily made a few notes of some of the finer contributions as I passed along the tables, and accordingly reproduce them here. B. S. Fox of San Jose, exhibited Gloria Mundi apples more like small pumpkins in size, than anything else, and I presume in texture as well. Bachelor a very large striped apple, was attractive in appearance, and elicited universal admiration; Chester Red Winter was another immense variety of a deep red color, also handsomely striped; Baldwin, Fallawater and Bellefleur, were all as fine as any I have seen at home. An adjoining display from Sonoma Co., embraced Gloria Mundi, Tompkins Co. King, R. I. Greening, Bellefleur, Golden Russett and Baldwin, all so large and beautiful, I could scarcely detect them. Close by, were three apples from Oregon of such enormous proportions, that to name them was entirely out of the question; but a guess, Gloria Mundi would not be far wrong. One of these measured fifteen inches in circumference. A splendid display of Grapes was presented by R. S. Thompson, proprietor of the "Hope Vineyard." Well ripened Muscat of Alexandria was, however, the attractive object in the collection, although there were excellent bunches of Flame-colored Tokay and other kinds. Other gentlemen presented creditable displays of Grapes. A large collection of Apples from Placer Co., was shown by J. R. Nickerson. J. Strentzel of Alhambra, in addition to a large and beautiful assortment of grapes, had Oranges grown in the open air, hard and soft Shelled Almonds, Pomegranates, &c. This was a decided feature in the Hall. R. Kercheral exhibited enormously large Apples and Pears. On one plate I noticed an apple weighing 1½ lbs. and a pear 2½ lbs. D. T. Adams of San Jose, made a very creditable display of Apples and Pears. L. A. Gould of the same place, gained the prize for "best collection of fruits." In this display, I noticed a plate of Catallac Pears, one of which weighed 1 lb. 11 oz., and all appeared alike in size. The great variety and remarkably fine appearance of this contribution, elicited very general remark. I noticed a single bunch of grapes taken from a seedling vine, which weighed 7 lbs.; in general appearance it was not unlike Black Barbarosa, but inferior in quality

to the latter. Some of the California vineyardists are now experimenting with the foreign varieties of the grape grafted on our native kinds, under the belief that such a course will impart to them a more hardy constitution; but the specimens on exhibition were certainly not corroborative of this theory. I tasted Muscat of Alexandria taken from a vine that had been worked on an Isabella root, and which was quite below the usual standard of this time-honored variety.

Through the kindness of the Committee in charge, I was enabled to test some of the finest looking specimens of Beurre d'Anjou and Glout Moreau Pears I had ever seen, but I am obliged to add they were very far inferior to the same varieties grown in the East,—that is, so far as flavor was concerned. The texture was coarser, and notwithstanding there was a certain amount of sprightliness and juice, they lacked the perfume and richness so essential in a first-class fruit. I was greatly interested in the tables devoted to the display of dried and preserved fruits, and can sincerely say that nowhere have I ever seen more beautiful Figs, Raisins and Prunes, than were here shown; and I cannot see anything to prevent California from competing successfully with foreign countries in producing these remunerative articles. Apples and Pears were also admirably conserved, and neatly arranged in boxes in a very tempting manner. In the department allotted to fruit, my attention was directed to a branch not two feet in length, on which was grown and perfected the present season, fifty fine sized Louise Bonne Pears; near by was suspended a life size photograph of the same,—a wonderful example of the profuseness of these western fruits. The Committee informed us, that last season a gentleman exhibited before the Society, a pear weighing 4½ lbs., but the name was not known. I should be very fearful however, that as regards flavor, it would be quite useless for the table at least. The vegetables were poorly represented, but the few on exhibition were really fine. I noticed some Potatoes weighing three pounds each, very smooth and perfect; immense Pumpkins such as we have annually at our Eastern shows, and no doubt quite as worthless; and Sweet Potatoes that were really surprising in size. One exhibitor of the latter, showed a single bunch, the product of one vine, with seven tubers, each measuring 12 inches in length, and 6 inches in diameter. Quite a good display was made of greenhouse plants by several contributors, among which

were fine specimens of Ferns and Lycopodiums of fair size. One firm had a nice assortment of rare evergreen in pots, embracing many species not hardy in the Northern States. I must not forget the good collection of Cacti from San Jose, deposited by G. W. Tarlton. As most of this tribe of plants succeed admirably in the open air at the above place, my readers can readily imagine the size and thrifty appearance of specimens grown under such circumstances. The wine houses of the City also contributed their share to the general collection, and as California wines are now becoming so well known and appreciated among consumers of the article, I may be allowed to say it attracted much attention and appeared to be one of the features, that the residents prided themselves on having very superior. Specimens of all the principal woods of California were on exhibition, beautifully dressed and polished to show the grain of each. It is needless to add, they were greatly admired.

A place of considerable interest to the stranger in San Francisco, and more especially to the Naturalist, is Woodward's gardens, located in what is now the suburbs of the City. The grounds are several acres in extent, and are prettily diversified with rocky eminences, mounds, &c., all under excellent cultivation, and very neatly and judiciously erected according to the prevailing style of picturesque gardening. The proprietor, with the natural love for the beautiful, and a taste for science in all its various branches, conceived the idea of devoting his property to the establishment of a Zoological and Botanical Garden. The collection of wild animals is quite extensive and rare, as are also the numerous species of birds. In the museums may be found mounted and very neatly preserved specimens of the same in great variety; here too is the nucleus for a complete suite of the minerals of the State, as well as many fine shells, &c., &c.

For several years the founder of this beautiful resort, threw open the gates to the public free of charge, but as the collection rapidly increased in size, the additional expense rendered an admittance fee necessary; but certainly no one could begrudge the merely nominal charge that is now exacted from the visitor. The greater portion of my time allotted to this visit, was spent among the trees and plants, which are mostly such as will not live in the open air with us at home; but as seen in this congenial mild climate, are objects of unusual interest to the botanist at least. The size of some of the specimens is not alone the

only remarkable feature, but the peculiar habit and luxuriant growth of each, is worthy of remark.

One of the first plants upon entering the enclosure, is a fine specimen of *Spartium junceum* or "Spanish Broom," 15 feet high, and at the time of our visit, covered with myriads of large yellow pea-shaped flowers. Growing beside it, was a large *Acacia cyanophylla* from Australia, 25 feet in height and elegantly trained. A grove of the charming native species, *Pinus insignis* of Douglas, was here seen by myself for the first time, and greatly admired for the feathery lightness of its deep green foliage, and for the dense compact habit of its growth. With us at the North, it will not stand in any situation, but here, nothing could exceed its beautiful appearance, and I can hereafter appreciate the many encomiums bestowed upon it by our transatlantic brethren. These cultivated specimens are about 25 feet in height.

Another of the handsome native trees belonging to California, was the *Cupressus macrocarpa* of Hartweg, and one of the finest species of the Cypress family; but alas! also unreliable in the Northern States. It is familiarly known as the "Monterey Cypress," and is particularly noted for the size and abundance of its cones, hence the specific name. Quite a large number of these plants are scattered through various portions of the gardens, all in the highest state of perfection, and averaging about 15 feet high, although in their native localities, they form trees 50 and 60 feet in height. Passing by a fine plant of the *Acacia linearis*, with its long linear leaves and at least 20 feet high, we arrive at the main Cypress collection. A well marked form of the "Common Cypress" of Europe,—*Cupressus sempervirens*, was labeled *var. stricta*, on account I suppose of its very erect habit of growth. *C. funebris* was represented by a dense plant about 6 feet in height, but it was not in so flourishing a condition as were others of the family. *C. Lusitanica* was 20 feet high, and one of the very best species seen. I must not forget the beautiful hedges of *C. macrocarpa*, 10 feet in height, remarkably dense, and of the brightest shade of green. Near the above, were growing several large plants of *Viburnum tinus* or "Laurestinus," from 6 to 10 feet high, and all in full bloom. An *Araucaria Bidwillii*, 8 feet in height, and regularly branched, was a pretty sight. This species is from Australia, where it grows from 100 to 150 feet in height.

Abies Menziesii is here in the greatest perfection; one specimen 35 feet high, was without doubt as handsome a plant as any conifer I ever saw; it was so regularly conical in outline, so dense in form, and so very attractive in color, that for the time being I could not resist the impulse of envying the proprietor such a decided acquisition. One of the graceful type of so-called "Weepers," was well represented in the *Schinus molle* or "Peruvian Mastic Tree," a native of South America, and seemingly perfectly at home in this pure mild climate. The plant is about 15 feet high and the same in diameter (spread of branches.) A large *Casuarina* not unlike a great "Scotch Broom," was here 20 feet high. *Pittosporum tobira*, 8 feet in diameter, with its leathery evergreen leaves formed a pleasing object; it produces early in the summer a great profusion of fragrant, cream colored flowers, but its blooming season is now unfortunately passed. Close beside the above, was an excellent specimen of the *Acacia pulchella*, known here as the "Zigzag Spiny Acacia;" it comes from New Holland, and is entirely successful at this place, forming a round compact bush 8 feet high, and the same in diameter. *Photinia serrulata* a well known Chinese species, cultivated frequently under glass at home, is growing here 6 feet high and at least 10 feet through. I was exceedingly pleased to see the great plants of *Veronica macrocarpa* scattered through this garden, each covered with long spikes of purple flowers, and all thriving with the most perfect luxuriance. Another of our old greenhouse plants is one of the fine sights of California gardens, and that is *Fabiana imbricata*; plants 5 to 6 feet high, each surmounted with numerous long spikes of pure snow white flowers, must be seen to be thoroughly appreciated. *Abutilons*, 15 and 20 feet high, growing in the open air all the year round, and always loaded with their drooping graceful bell-shaped flowers were very handsome of course. A species of *Eucalyptis*, a myrtaceous genus from New Holland, was exceedingly conspicuous and quite pretty. The best tree was 25 feet in height, with long slender branches, each terminating in a long loose panicle of green fruit. The specimen of *Sequoia gigantea* although very good, had not the perfectly healthy appearance of those growing wild on the Sierra Nevada. *Acacia verticillata*, 15 feet across and the same in height, was very fine. This species, a native of Van Dieman's Land, succeeds admirably here. The *A. cultriformis* is more curious than handsome,

and is well represented by a specimen 8 feet high. A fine plant of *Leptospermum* 10 feet high, was doing well, as was also *Escallonia montividiensis* from Brazil, a specimen 10 feet in height, showing favorably its pleasing form and habit. An *Acacia dealbata* 25 feet high, was remarkably fine, and although it is sufficiently hardy to stand in the open air in England, it will not succeed in the Northern States. At this place it is unsurpassed for gracefulness; and in addition, to its lovely foliage, when in bloom, the rich golden colored balls of flowers are delightfully fragrant, thus rendering it one of the most valuable of the genus. A glorious specimen of *Ligustrum lucidum* or "Shining-leaved Privet" from China, was 20 feet in height, and was conspicuous for its lilac-like leaves. *Melaleuca armillaris* a Myrtaceous plant from New South Wales, was 10 feet high, and formed a beautiful specimen with long drooping branches; the aromatic fragrance of the foliage was exceedingly fine. A pretty species of *Escallonia*, a Chilean plant of considerable value for ornamental purposes, was here 20 feet in height. *Eriobotrya Japonica* of Lindley (*Mespilus Japonica* of Thunberg) usually known as the "Japan Loquat," was remarkable for its large leaves and showy appearance; it measured 10 feet in height.

Before leaving the place, we made a hurried tour of the various conservatories and vineries, all of which gave evidence of careful attention on the part of those in charge. Large numbers of strong vigorous plants of *Calla Aethiopica* or more properly *Richardia Aethiopica*, were growing on the edge of a little lake, and attracted our attention by their unusual size and vigorous appearance, being at least 5 feet high, and surmounted by exceedingly large creamy white flowers.

As my present letter is quite long enough, I shall have to curtail my notes on these specimen plants, but at the same time, I desire to advise every one visiting this city to spend a few hours in examining the many objects of natural history to be found here. In my next, I will have something more to say about the gardens of San Francisco, as well other topics not strictly horticultural.

Sincerely &c.,

JOSIAH HOOPES.

JUDICIOUS STOCKING OF SMALL GROUNDS.

BY WALTER ELDER, PHILA.

This is a laudable desire with many lovers of rural life, to grow a numerous variety and species of ornamental trees and shrubbery, flowers, fruits, &c.; but those who have small grounds are often at a loss as to what species and what number will best suit their fancies and ornament their grounds without causing confusion in after years; and as many purchase rural estates every year, it behooves all who are skilled in such matters, to give their opinions, and those needing knowledge, should subscribe for, and read our horticultural magazines for information, and they may be saved hundreds of dollars, and severe disappointments in stocking their lands.

An evergreen hedge around small grounds, should be one of the first embellishments set out. Evergreens trees being also green all winter, may be numerous set. The different species give diversity and impart beauty to each by their contrast; each one can be kept within certain limits by annual pruning, which is very much in practice now. Some deciduous species of trees grow larger than others, and for immediate shade around the house, the large, of compact forms, may be set out; others of more dwarf habits, may be set upon the lawn, at such distances as will suit, and so arranged as to make a pleasing contrast of their forms and foliage. It is the *apparent variety* that gives beauty and an air of wealth. All can be kept compact and within proper bounds, by pruning; so it is with shrubbery, both evergreen and deciduous, they can be grown in many forms by annual clipping; the evergreens are clipped in April, some of the deciduous are clipped in winter, others after their blossoming is over, others should not be clipped, as they produce their blooms on top of branches, say Lilacs Mountain Ash, Hydrangea quercifolia, &c., if they grow too tall, top them just after blooming. Many flowers are better for pruning. By cutting off the end of running branches of Verbena, Petunia and other creepers occasionally, they will produce double the number of blossoms, and will occupy less space; and climbers, by nipping off the ends of upper shoots, the plants will branch more at the bottoms and better clothe walls, frames, lattice work, &c., and will bloom doubly profuse and more beautifully. Fruit trees can all be kept within certain space, and yield plenty of fruits by judicious pruning;

the trees will also keep thrifty, and will be made into handsome forms. So quite a variety of tree fruits can be produced upon small grounds to serve the family necessities, and the varieties so selected as to give a continuance of fruits, by the earliest, medium and late varieties. Grape vines should have racks or arbors to climb upon, or be trained upon them; say Concord for early, and others for later fruits. Berries are also nice and wholesome, strawberry earliest, and later varieties; next follows Raspberry. Gooseberry being used green for tarts, gives a change; Blackberries,—Early Wilson and Kittatinny, make a long season of berries. Currants are useful when half ripe for tarts, and for jelly when ripe. Now let any one consider how many delicious fruits, pretty and fragrant flowers, handsome trees and beautiful shrubbery they can have upon an acre or two of good land, besides vigorous health and cheerful spirits, with fresh country air. *All must get land for gardens.*

ABOUT MOULD OR FUNGI AND ANIMALCULÆ.

BY JACOB STAUFFER, LANCASTER, PA.

Those microscopic objects, in regard to which much has been discovered, and much more remains yet to be discovered and explained, and which have much to do with vegetables and their diseases, demands our attention.

I shall not stop to enquire into the controversy as regards the origin of fungi—from the yeast cells to the more highly organized cryptogamous plants—or the arguments advanced to prove "spontaneous generation," but am willing to accept the opinion, that all have their germ, and under favorable conditions will manifest themselves.

A number of essays have been written about Malaria as the cause of intermittent fever. Dr. Salisbury has demonstrated that "Malaria" was caused by a fungus, which he terms the "Ague palmella," growing in certain localities where the soil and hygrometric conditions are suited for their development; and that he has found these plants in the blood and urine, differing in no respects from the plants in their natural habitat; and further states, that when quinine is for sometime taken, it destroys the power of reproduction or spores of the plant, and is the means of cure. Now it is a fact, that any vegetable solution will develop infusoria, except that of barks, or which contain the quinia.

Dr. Salisbury has been somewhat criticized, but the facts remain. I will here mention a matter that came under my observation, which I never published or heard of. On a botanical excursion along the banks of the Juniata river, I took shelter beneath the rocks during a brisk shower about noon, in the summer of 1856; the sun came out brilliantly, I stepped out with a view of descending from the railroad to a flat delta on the bank of the river. From my elevated position, I had a fair view of the flat place beneath me. Casting my eyes over the field for some object of attraction, I noticed here and there a puff of smoke-like vapor arising from the soil, which was speedily dissipated and became invisible; this arrested my attention, and led me to consider the matter. I then came to the conclusion that the moisture produced by the shower of rain, and the sudden warmth of a mid-day sun, caused the bursting of certain puff-balls or fungi and the apparent smoke. The dense mass of sporules discharged, such as I have seen, forming incrustations on plants in malarious districts, and the idea then occurred to me, that that was the "Malaria," and that I had better keep on high ground, and change my course to hunt along the mountain sides for the time being, which I did, rather than risk "catching the Ague."

How far can these sporules be conveyed? They can be buried up by fogs and held for a long time, and carried to a great distance; like saline particles which are known to be so conveyed. As an evidence, we may cite the experience of the farmers on our eastern sea-board, where fogs are frequent, and it is found that at a distance of 15 miles from the salt water, they never need to salt the cattle, as there is enough of salt upon the grass which they daily eat. Taking it for granted then, that these minute germs float in the air, and will develop under suitable conditions, the question now arises, what are those conditions? Alternate moisture and heat, cloudy or foggy weather, seems to be the leading conditions to promote their development, and a proper nidus or combination of matter to foster them.

But we find certain excrescences which have puzzled mycologists and naturalists generally. The great diversity of galls formed by insects, which puncture the tender shoots, and cause an extraversion of the sap, which produces the gall and forms the nidus of the larva, in which it de-

velopes. Those are pretty generally well understood.

But an extraversion of the sap can be induced by other causes, which also result in forming spongy excrescences, which on drying, become hard and woody or powder. For instance, if in early spring the weather is prematurely mild, the blossom or leaf bud is forced before its time; may be subsequently destroyed by frost, or so far altered as to produce a swelling and rupture of the tissue, and cause granular swellings, which only form a receptacle for a species of *lycoperdon*, which attaches itself and converts it into a fungoid excrescence.

I have now before me a similar excrescence to that sent you by Mr. Barry, growing on a young hickory tree. I can easily discover the fungus from the external surface dipping downwards, but not under the bark; but I do trace a black cicatrix, that seems to indicate a wound in the bark, from which the sap exuded.

Fungoids of this class are usually (in their early stage) formed of a gelatinous substance, and called Tremella—but nothing is more uncertain than the generic character, and even the natural order of Tremella. The genus is made up of various gelatinous productions, in which no traces of fructification have been detected. Having no shields, tubercles or warts, they could be referred to *Lichen* or its allies; neither have they seeds imbedded throughout their substance to make them *Ulvæ*, much less any aggregated seeds with or without a perceptible pericarp as in *Fucus*. They moreover differ from both the latter genera, in not being *submersed* *Algæ*, for the aquatic species are, as Roth and Persoon observe, much better excluded. The able cryptogamist, Persoon, refers the Tremella to the order *Fungi*, but without any attempt to show that they produce powdery seeds from the surface of a *Hymenium*, or superficial membrane. Persoon defines 24 species, generally parasitical on the bark or branches of living trees, or on dead wood.

It would be idle to detail all the imaginary species of various genera by the name of *Tremella*, *Clavaria*, *Puccinia*, &c., which authors of the first authority have made out of similar productions. It is vain to attempt to reconcile the statements, and I have come to the opinion that some at least, are mere gummy exudations, caused by immoderate wet, accompanied by resinous or ligneous particles, insoluble in water,

which give them when dry, often a powdery appearance, or of a woody character. I am aware, objections may be advanced, but whether correct or not, it is simply my object to awaken closer inspection; we must observe and note facts, be the theory what it may. I have now studied the matter only far enough to enable me to begin to make research the coming summer, with a basis to start from. Any facts on this subject will greatly interest me. All of which is respectfully submitted.

CONDITIONS FAVORABLE TO PEAR GROWING.

BY J. W. CLARKE, GREEN BAY, WIS.

There can be no particle of doubt but that the Editor of the *Gardener's Monthly* is right in emphasizing the opinion, that a "cool surface" of the soil is necessary to success in growing Pears. The radical difficulty we have to meet is, the extremes of atmospheric temperature, the prime cause of disorganization, giving rise to many forms of disease in grape wood, and in Apple and Pear trees. The simple principle of keeping the surface free from extremes of heat, may be carried further, and applied also to the stems and branches of Pear trees particularly.

Many years ago, Mr. Barry of Rochester, New York, proved conclusively by actual experiment, that rapid and extreme changes of temperature caused leaf curl in the Peach. And as changes in the color of Pear leaves, always indicating disorganization, usually and quickly follow extreme changes of atmospheric temperature, there is little if any room to doubt, that extreme and rapid changes of temperature, cause rupture of cell-growth in the leaves and albumination of Pear and Apple trees. In 1869, vast numbers of Apple trees here, in central Wisconsin, were affected with what is called Pear Blight. The edges of the leaves curled, and turned to a dark brown; and this was as much the case on North slopes as in orchards with a southern aspect; showing that the causes were actively atmospheric.

The season, the air, and the soil, were in 1869 more moist than is usual; this gave a more watery sap and succulent condition to the newer wood, with greater heat absorbing capacity—by excess of succulency—hence it would result that rupture and Leaf Blight would prevail from excess of moisture—to growth made in a usually dry climate—and extreme absorption of heat, even when the atmospheric temperature was no high-

er than in average seasons. It does not seem necessary to admit that in any instance fungoid growth can cause disease, as these parasites are a scavenger provision of nature to use up disorganized structure. The Pear makes more rapid succulent and tender shoots than the Apple, by reason it forms structure and abundance of sap: the young wood corresponding with the fruit in this particular.

Suel Foster is said to be intending to set rows of Evergreens on the south side of his Pear trees with branches of Pearlapping with those of Evergreen. This close proximity is, I think objectionable, as no heat is required from the Evergreen by the Pear, and both protection from S. W. winds, and shade can be as well secured by putting the evergreens a few feet distant. It appears to me that the shade of evergreens will be too dense or complete for the best growth of the Pear, and that the parts of the tree alternately exposed to the ten o'clock sun, before shading, and to the four o'clock heat afterwards would subject the pear wood to too great changes of temperature, besides excluding light and air in too great a degree on the shaded side of the fruit trees.

Equability of temperature is a great desideratum, as a preventive of rupture—the great source and seat of disease. To secure this result without too much excluding light and air, I suggest that thrifty growing Apple, Maple, or other deciduous trees, that are, and will continue twice as large as the Pear trees, be set on the S. S. W. or two o'clock side of the Pears. Trees that leaf out as easily and retain their leaves as late as the Pear, to be benefited, can be employed; and in this way the principle of the practice of protecting Evergreens, to secure equality of temperature, by partial shade, may be as easily applied to the Pear, giving it a cooler and more equable climate, within one of greater extremes of heat, as we see exemplified by the naturally cooler shaded or inter climate, in which countless multitudes of evergreens flourish in the woods of the far north and in the mountains farther south. More of a practical cast can be suggested, but for the time we will postpone.

ALPINE STRAWBERRIES.

BY MR. CHAS. CRUCKNELL, HARRISBURG, PA.

The argument advanced by some of those who think the Mexican Everbearing and the old Red Alpine one and the same, is, the late wet season

had much to do with their everbearing character. This statement becomes valueless, when compared with the following testimony from the pen of an eye witness, who saw them growing. The Editor of the *Gardener's Monthly*, at page 240, of last year's volume says: "We have seen Alpines bear a few flowers occasionally from the runners, but this one bears profusely from the runners as they grow. Another bed which we saw on the grounds of Mr. J. P. Whiting, at Detroit, set out on the 12th of May, was not only bearing large fruit abundantly, but the runners from them were also bearing."

At Wintertheen an expensive system of tanks had been built with a view of irrigating the beds at pleasure. When the spring rains ceased, irrigation was commenced, and continued so long as the beds bore fruit, which was generally to the end of July.

The plan adopted was to turn the water on the beds at night and in the morning stop it off. If water was an advantage to the plants, they certainly had enough of it. Irrigation certainly prolonged the fruiting season somewhat by causing the old stools to throw up a succession of flowers, but I do not remember ever having seen any of the growing runners show a tendency to flower during the several years I had them under cultivation. Occasionally some of the old stools would throw up a few flower stalks, but so late in the season, that the frost generally nipped them before the fruit had attained any size. There was one kind grown which did bear fruit the whole season, the fruit both red and white being inferior to the Red Alpine. This kind made no runners, but was increased by division of the stools.

CELLULAR TISSUE IN THE PAULOWNIA.

BY PROF. RUSSELL, SALEM, MASS.

Examining a branch of Paulownia, I was struck with the appearance of the cellular tissue in the immediate vicinity of the buds. That next the bark was tender, imperfect, and the cells of smaller size, while the wood cells about the buds or "eyes" was a transition from the cambium cells; elongating, hardening and becoming fibrous and ligneous. The first named, and therefore the *Cambium layer* or *Cambium tissue*, was filled with minute granules, the contents of the several cells yet unchanged; those around the eye of the buds were bent in a circular manner, the incipient bud was only a more compact granular mass, and similar but smaller masses

were here and there found in the cells, at a distance from the eye of the bud. I could find no connection with the medullary rays, and if anything is particularly wrong in the old fashioned terms, it seems to me calling those woody plates "*Medullary rays*" is certainly so. The *Medulla* is the pith, and pith is nothing but dead parenchyma, shrinking and breaking away as the stem expands, particularly in hollow stemmed plants, and those plants which grow rapidly. The marrow and pith of bones are always living structures; but of plants, of use only for a few weeks or months of their first growth. The analogy between animal and vegetable structure in "pith" is only ideal, looking and seeming, but not identical or homologous. These smaller clustered cell-content masses I consider reserved forces, in case the eye of the bud fails; and hence as they have issued from the cambium layer near the normal eye in the axil of the leaf, which eye you have proved by observation becomes abortive, so similar ones can be created in the cambium layer, which extends in a straight line above the axillary bud to form a second, and again above that to form a third, which in cassia pushes and grows into the leaf stalk (you say). Here then the *node* system of new leaves seems only defective, and the true leaf, though looking like springing from the wood, in reality springs from the cambium tissue or layer, which is always on the surface of the sap-wood and lines, on the other side the inner layer of the bark. With this plan I can see no sort of use in the vitality of the apex of the medullary ray, even were I satisfied that it possessed vitality, because the cambium layer, with its ever living cellular tissue subject to the same law of reproduction as the cellular tissue of the cryptogamous plants, is always capable of forming possible bud germs in any part of its extension.

Why the yet tender cambium layer or tissue bends around in a circular manner, and hardens in circular plates of wood so as to form the knot at the base of the yet coming branch, or rather of the yet to be developed branch, I cannot imagine, but presume it may have something to do with the *spiral* arrangement of the foliage as well as of all branches; only we see it here in its very first start, so that what is true of the whole, is true of the part, even of the minutest and aboriginal part, the first ligneous growth of bud and stem.

[The last two paragraphs have reference to the suggestion of a friend in reference to the uses of the medullary rays.—Ed. G. M.]

CULTIVATION OF BLACK HAMBURG GRAPES IN GROUND VINERIES.

BY J. S. HOUGHTON, PHILADELPHIA.

Read before the Penna. Hort. Society, April 5th, 1870.

The finer kinds of Grapes, such as the Black Hamburg, the Muscat Hamburg, &c., have been much grown in England, within a few years past, in what are called GROUND VINERIES or Curate's Vineries, that is, planted in the open ground and covered with sash in the form of an inverted V—thus: Δ . This method of growing grapes, is said to be very economical and very successful, as many as 25 lbs. of fine grapes having been produced on a single vine. It is a method well suited to tenants who cannot build vineries without danger of loss, and has found much favor in England.

Four years ago, I commenced experimenting with the Black Hamburg in this way, and the result of my labor has afforded some useful hints on grape culture generally.

My first experiments were made strictly after the English method, as described by THOMAS RIVERS and others. The Black Hamburg vines, six of them, were planted in the flower garden in common soil, clay loam, and were covered with two sash hinged at the top, and set in the form of an inverted V—after the fashion of a common chicken coop—thus: Δ . The soil under the sash was covered with tiles to keep the weeds from growing. The sash were elevated on bricks (2 inches) from the soil, and there was a small aperture at each end of the sash for ventilation. The sash were seven feet long.

The vines grew in a very thrifty and satisfactory manner the first season, but it was found that the space afforded under the sash, say two feet six inches in width, and about eighteen inches in height, was not enough for the vines and laterals. The vines according to the English method rested on tiles.

The first winter the vines were buried in the soil, and the spring being unfavorable, they were not brought out early enough, and were somewhat injured.

The second season the sash of the ground vineries were elevated upon glass sides, or side sash about 18 inches high, making the vineries look something like the "French roof" or Mansard roof now so much in use. This gave them a height of nearly two feet and more space generally, and the vines were suspended on wires. The vines now had nearly room enough, and the

sash were extended to 14 feet in length. But there was too much glass and too much heat for our climate, although we painted the glass with whitewash in hot weather.

The second winter the vines were buried in the soil, and were again injured. Still, the third summer we had eight or ten good bunches of grapes from the vineries.

The next season, (which is now just past, 1869,) I removed the glass sash from three of the vines, and covered them, instead, with close wooden boxes or cases about two feet six inches high in front, and three feet four inches high at the back, three feet four inches wide, and 16 feet long. On these boxes or cases, were placed sash, fitting very closely. The boxes run north and south, and the top sash has an inclination to the east. The boxes are raised about two inches above the soil, and a small aperture was made at each end, say a hole six or eight inches in diameter near the top, for ventilation. The vines are suspended on strong galvanized wires.

In the winter of 1869, the vines, instead of being laid down in the soil, were tied up in roofing felt or gas tar paper, and were injured worse than before, so that the last season we had but little fruit, but the quality was excellent. The vines in all the ground vineries but one, during last season have done very well, although they started late and feebly. The box in which the vine has not done well, I will describe presently. I will first mention the method of treatment which the vines received and the result.

First, the vines have all been cultivated on the most strictly "let alone system." Not one of them has ever been watered, or mulched, or syringed, or manured, or tended with any of the usual care bestowed upon exotic vines. Sometimes the boxes or sash have not been opened for weeks by anybody. When the laterals got very long, and stuck out of the sides of the cases, they were broken off. Once or twice in the season, the vines got a proper pruning. A little sulphur was thrown in the cases as an antidote to mildew, and that was all that was done in the way of care or tending.

The vines grew rapidly and healthily, and the leaves though not large, were free from mildew. In the vineries with glass top and sides, the leaves burnt somewhat, although we painted the glass with whitewash. In the close wooden boxes with no glass except on the top, (a good deal like a cold pit) the vines grew in a more vigorous

and perfect manner than in the vineries with more glass.

The vines all started late, but the fruit ripened satisfactorily, early in September. We took little or no pains about thinning. The quality of the fruit was quite as good as in any cold grapery, but the bunches and berries were smaller than when such grapes are grown on strong vines and well thinned. The fruit colored well, and the wood ripened well.

The ground vinery which did not do well, I will now describe. Having had so much success in growing the Hamburg grape in this rude and careless way, I came to the conclusion that it would probably stand more exposure to the open air, and to atmospheric changes. I therefore left one of the wooden cases or boxes entirely open on the east and south, and closed on the north and west, and covered on top with glass sash. The result was that the vine was nearly ruined. It was covered with thrip, rose bugs, beetles and other insects, and mildewed all over, including its fruit, very early in the season. So disastrous was the effect of the exposure to the open air, that I was compelled to close up the east and south sides with boards, when the vine immediately began to improve, although still covered with thrip and mildew.

Simultaneously with this last experiment, I tried the Hamburg Grape and other exotic hardy varieties in pots, 10 or 15 of them under a glass roof six feet high, protected by a hedge 12 feet high on the west, and also by boards on the north and west, but without success. The Hamburg mildewed and lost its foliage, and was injured by thrip and insects, which it was impossible to conquer, at least not on the "let alone system," which some people so much admire.

My experiments with the ground vinery lead me to these conclusions:

1. The Black Hamburg and other hardy exotic grapes suited to a cold vinery, may be grown and fruited successfully, planted in the ground in any good garden soil, covered very closely with a box or case of boards, with a glass sash on the top, and treated with no more care than is required by native grapes.

2. Very little air is required to be admitted at the bottom of the case, and very little ventilation at the top, (and only at the ends) and no opening or closing of the ventilation is required. It is probable that no ventilation at all is required at the bottom.

3. Syringing the vines is not positively necessary to fair success, but would be highly useful, and should be performed gently and just before night, all through the early part of the season, except when in blossom.

4. The great object should be to keep out insects, and particularly thrip, and with this view, all the openings for ventilation should be covered with gauze.

5. Sulphur scattered through the cases, is supposed to antidote mildew.

6. The close unchanged air which the Hamburg will stand in these cases, affords the grower of native grapes a hint as to the conditions under which the grape will exist, in the most perfect state of health and vigor and free from mildew.

7. The difficulty of keeping the vines free from injury in winter, has been obviated by the use of the close wooden boxes. The vines should be bound up in straw and supported by wires, and the glass sash should be heavily painted with whitewash inside or covered with boards to keep out the sunlight in February and March. The boxes should also be well ventilated in the latter part of winter.

MEM.—April 5th, 1870. We have just opened the vines treated last winter as above directed, and find them in the most perfect condition, not a single bud injured.

8. It may be added, that in the wooden cases, it is easy to grow new canes for renewal, 16 feet long in a single season, if desired, so as to fruit on new wood instead of on spurs. These renewal canes may be left to grow on the floor of the vineries or suspended on the back or front boards. Some of the English cultivators grow their canes in these vineries fifty feet long or more. Mr. Rivers says he shall try one hundred feet. I think canes from sixteen to thirty-two feet long, will be found most convenient and economical.

9. These vineries may be placed on the east or west side of a fence or wall, as a "lean-to," but a southern exposure in this latitude, would be too hot. I have a very high opinion of the usefulness of this method of growing foreign grapes, and think if it should be applied to some of the more delicate and finer varieties of native grapes, some remarkable fruit would be produced.

BEAUTIFUL TREES AND SHRUBS.

BY CHRONICLER.

THE MOUNTAIN ASH.

Sorbus aucuparia is commonly called "Rowan tree" and "Mountain Ash." It is indigenous in Great Britain, where it has for many centuries back been held in superstitious reverence. A person going a lonesome road with a piece of the Rowan tree or its berries in his hand or pocket, considers himself safe from ghosts and witches, and Dairy people put a branch above the door of the cow stables and milk houses, to guard against witchcraft when the cows calve, and when the milk is churning, and often repeat the ancient rhyme "Rowan tree with red fruit, puts the witches to the root." (rout).

It is very ornamental upon a lawn, both in spring when in bloom, and in the autumn when crowned with its coral berries. Its foliage, habit of growth and clean shining bark, are all comely. When grown singly, it attains a height of fifteen feet to twenty feet, and well branched; it should be set near to the dwelling house or roads, where it can be readily seen. Upon private grounds less than twenty acres, it is best to set it singly; but upon very large grounds and parks, groups of seven trees make a better show; say set the largest in the centre, and the six around it, eight or ten feet apart each way. It is hardy, and grows upon a great variety of soils and in different exposures. It should be more generally used in arboral embellishments.

THE ELDER TREE.

Sambucus is a genus of several species. All the Ligneous species got the appellation of "Elder Boontrees" in this way. In the early times of the Christian era, a tract of land was appropriated for the maintenance of each church. The Bishop got the first choice of a portion of the lands for himself and his assistant Priests, and chose where *si son a nuni* grew, which soon got the name of "Bishop's weed," as it was always found upon the richest grounds. An older class of the members managed the worldly affairs of the church, and were called the "Elders;" they got the second choice of the lands as a *Boon*, and chose where *Sambucus* grew, as that was an indication of good soil, and it was called the "Elder Boontree;" subsequently it got only one of the names, either *Elder* or *Boontree*. The various species grew to different heights, from six to fifteen feet, and all were ornamental in spring with white blossoms, and in autumn with black

fruits. Seeds of them were sown in gardens, and under special culture new varieties were produced of greater beauty, and they became generally used in arboral embellishments, both in shrubby groups and as standards upon the open lawns, and flourished upon all kinds of soils, and upon rocks and poor gravels. The following are varieties: *Sambucus variegata*, called "Silver-leaved Elder," the leaves are green and white mixed in equal portions; very showy. *Sambucus aurea*, is called "Golden-leaved Elder;" the foliage is as much yellow as green, and is very beautiful. *Sambucus pulverulenta*, the leaves look as if finely powdered. *Sambucus purpurea* has purple blooms and very ornamental. *S. Viridis* bears green berries. *S. Albida* bears white berries.

All the improved varieties of *Sambucus*, are universally used throughout Europe, in ornamental, arboral embellishments; but with us, they are seldom seen upon pleasure grounds, although they would flourish upon spots where other dwarf trees and shrubs would fail, and they are more ornamental than many other species that we do grow. There are two species indigenous in our middle and northern States, and are a plague to our farmers. The improved varieties are very different from them. Our Nurserymen should have them more generally introduced and recommended.

The varieties with variegated leaves, should not be allowed to bear blossoms nor fruits, as that would make them look too lean. Their special beauties are their foliage, they will grow more massy and ornamental if their blooms are cut off before they expand.

THE JUDAS TREE.

Cercis is a genus of four species of neat trees, which grow twenty feet high, and bloom beautifully in spring, before the leaves expand. They are all called "Judas trees" for this reason: After Judas Iscariot betrayed his *Divine Master*, he became universally detested; that with the malignity of his crime weighed so heavily upon his mind, he sought to commit suicide, and procured a rope and hanged himself upon a branch of *Cercis siliquastrum*, which was afterwards called the "tree of blood," and as it bore deep red blooms, the appellation seemed very appropriate. But as civilization and refinement progressed, the name was changed to "Judas tree;" so all the four species commonly get that name. The species "flore albo," bears

white flowers; it and *siliquastrum* belong to south of Europe and western Asia; "parviflora" belongs to Bucharra, and "canadensis" is a native of North America. They are among the first trees to bloom in spring, very ornamental in foliage, form and blossom, and all are well deserving a place in every arboral adornment. It seems strange that they are so seldom used with us; they are universally used in tree ornamentalations throughout Europe.

Cytissus alpinus, (Scotch Laburnum) is a very ornamental tree when in bloom in May, being heavily loaded with large racemes of bright yellow color, which hang gracefully from the boughs like clusters of gold. The tree thrives upon various soils and in different exposures; attains twenty feet high; even upon rocks and gravelly spots half shaded, it flourishes.

Robinia viscosa forms a neat tree twelve feet high and bears purplish pink blooms in racemes abundantly in May. It is a rich gorgeous looking ornamental tree.

Double blooming Peach trees are also very beautiful, their blooms are of various colors, and as double and large as Noisette Roses, and are produced in great abundance. The trees flourish upon various soils.

Magnolia purpurea (Purple Magnolia) is a most beautiful tree of twenty feet high, but has many stems like a large bush; the blooms are large in size, purple outside and white inside, and a full grown tree when in bloom in May, is one of the most ornamental.

Rhus Cotinus (Mist tree) is rather of singular growth. When in bloom in July, it looks like a white cloud tinged with all the colors of the rainbow; it grows twelve feet high, rather in the form of a bush than a tree; its singular appearance makes it a general favorite. It flourishes upon various kinds of soils.

LAW OF DEVELOPMENT IN THE FLOWERS OF AMBROSIA ARTEMISIAEFOLIA.

BY THOMAS MEEHAN.

The following paper we reprint from the Proceedings of the Academy of Natural Sciences, of Philadelphia, written by the Editor of this magazine. Although written for persons interested chiefly in abstract science, and consequently full of technical terms, to which many of our readers are unused, it may serve to call attention to the many interesting things which abound everywhere about us, and yet are comparatively un-

known to the wisest. Here is a plant known as the common Ragweed, which every one despises as one of the vilest weeds, furnishing facts which may have an important influence on the most interesting problems in animal and vegetable physiology:

"In the fruit of *Ambrosia artemisiaefolia* the perigynium is crowned with a series of horns. I propose to show that these are all that remain of other flower buds, which have been absorbed by their elder sister during infancy.

It is not generally known that this species is occasionally dioecious, though Dr. Darlington in his *Flora cestrica* makes note of the fact; nor is it known to the mass of botanists that a peculiar form of neutral flower exists, though many years ago Torrey & Gray (*Flora of North America*) briefly alluded to it. These dioecious forms and neutral flowers afford the key to the whole structure.

In the regular form of this species the sequence of the flowers is according to the laws recently developed in my papers on sex. The female flowers receive the plants' first and greatest care, and always appear in the lines of strongest vitality, of which a vigorous axial development is one striking type. The male flowers only appear in the weaker lines, after the cohesive force so essential in building up the woody axis has been considerably spent. In the purely pistillate forms we almost always observe an unusual axial activity. The female flowers in the regular forms are sessile in the axils of the leaves; but in the mostly pistillate forms they are generally elevated on short peduncles, giving the plants a peculiar twiggy appearance. On the other hand, the nearly male plants, which by the way are rarely seen, present characteristics the reverse of these. The heads, usually female, when appearing as male flowers, exist as large burrs tightly set in the axils, without the slightest tendency to pedunculation. Though varying in intensity, and occasionally intermingling, no one can fail to see that these forces prevail in these forms—the feminine, in connection with cohesive and vital activity in the axillary parts—the masculine, with weakened axillary activity, and individualization.

The flowers themselves, however, afford a better illustration of this than the supporting parts. The male flowers are five to eight in each involucre cup,—in the female they are single; but in place of flowers the female has five to eight horns on the perigynium. The want of corres-

pondence in number in parts which were no doubt embryologically the same, together with a correspondence in the number of the horns on the perigynium, would naturally suggest to one acquainted with absorbing or coherent power of the female influence that the primordial bud had absorbed the rest, of which all that remained were these horns. This I subsequently proved to be more likely by the discovery of two forms of perigynia. Occasionally three female flowers appear in one involucre cup. In such cases the two lateral ones have, mostly, no horns, or rarely one or two; while the central one has but from four to six. In the male flower we find two forms; the perfect ones with five broad anthers; abundantly polleniferous, without horns, and without any attempt at producing a style; the other class has anthers which seem never to produce perfect pollen, but are projected into a "setiform inflexed appendage" or horn, and have a single sterile style which is capped by a numerously rayed stellate apex. Torrey & Gray (*Flora N. M. Page* 290) notice this form of flower, but err in evidently believing it universal; while other authors seem to refer to the former, ignoring or ignorant of the existence of the latter.

The absence of a style in connection with perfect anthers, and the attempted production combined with the deficiency of pollen in the neutral ones, show an evident progress towards a female stage; and also it is clear that with this progression is a tendency to cornution in the parts absorbed. I pointed out to some of our botanical friends in the Academy some weeks ago, that from these circumstances the horns on the perigynium could scarcely be anything else but the remains of absorbed flower buds.

I have now found a specimen which affords the practical demonstration of these truths—a female plant not a foot high, with enough of the cohesive power to give it an entire female character, but not to the same extent that more vigorous forms possess. The horns are in every state of gradation from their usual condition on the perfect perigynia to petaloid scales, down to perfect flowers with the regular twin styles; though adherent by their bases to the central or main flower. Only for this early cohesion with, and thus a reception of the female influence, the lower ones would undoubtedly have been male flowers.

I present this specimen, together with a suite of the others referred to, for the Society's herbarium.

I may be again permitted to repeat what I

have frequently said already, in papers before this and kindred associations, that there are probably in plants two distinct principles going along together—the one *hereditary*: a conservative, coherent, female force, which, as the very existence of all things depends on it, nature throws in and around it her strongest vital powers;—and *variation*: a progressive, radical principle, the only object of which is to prevent stagnation,—to segregate and disperse rather than unite and preserve, — and by giving varied form to matter, is the source of the endless changes which give beauty and interest to the other;—less vital, less essential, less cared for by nature because she reproduces herself by buds, tubers, suckers, roots, and many other ways *when she does not care for variety*, without it; but not less essential to our pleasures and intellectual progress, and indeed the eternal progress of all things.

I submit this paper as another contribution to a theory which may not yet appear to others so early a law, as it continues by almost daily observations to grow on myself.

A VISIT AMONG THE FLORISTS.

BY V. B. KINGSTON, N. Y.

After the repose and inactivity of a long winter, and as spring approaches, one feels like looking around to see what is going on in the reign of Flora.

The new varieties so abundantly mentioned in the catalogues, do not sufficiently satisfy one's curiosity; but a personal visit is eminently satisfactory.

The busy season will soon commence, and I could not make a better use of the few intervening days, than to take a trip to the different floral establishments in this region.

Commencing, I first visited my friend D. G., gardener for E. BECH Esq., of Poughkeepsie. A larger, more choice variety of plants is not often found on any gentleman's place; all the plants are well cultivated and placed to the best advantage, as well in suitable apartments, as in color and size. It is a beautiful winter garden which completely takes possession of one's senses, especially of the connoisseur, who will find plenty of objects to gratify his love of the rare and beautiful. Fine Palms meet the leaves of graceful vines running along the top lights in bloom, or showing their variegated foliage. Mosses creep along the ground and border the

walks, while ferns and foliage plants fill the middle region. Here and there hangs one of those wonderful air plants belonging to the Orchidean family, with their peculiar shaped and singular colored flowers; in the rear, water drips with a pleasing tinkle over rustic rockwork covered with moss, ferns and creepers. The fountain with its whispering waters and the Canary birds, are the musicians, while the gold fish fill the little pond with life. Two large pyramidal shaped Coleus stand on either side of the door, looking like two French grenadiers guarding the entrance to the floral temple. The left wing, besides Camellias and other winter bloomers, is nearly filled with gay looking Azaleas, and I think there is no plant that is more showy and beautiful, than a well cultivated Azalea in full bloom. The right wing is filled with Roses, beautiful plants abounding in buds and blossoms, among which is a fine Marechal Niel full of superb flowers; Carnations, Ericas, Pelargoniums and Zonals, with their immense clusters of scarlet flowers together with, Golden Genistas here bloom in beautiful harmony. A variety of hanging baskets filled with new vines and choice plants, are placed advantageously throughout the house, while Violets, Heliotropes, Mignonette and orange blossoms perfume the air. The strawberries and grape vines were looking prosperous and promising in their several apartments.

Many professional florists and connoisseurs visit this place with great satisfaction. I told my brother Florist, our plan to visit other similar places, which he seemed pleased with, and agreed to join us.

Towards evening, we started for that great city, Gotham, where one always needs money, and for it can procure almost anything. The next morning we took a trip to Astoria, curious to see those wonderful Coleus of MARC & WITHAM. We were fortunate in finding Mr. Witham at the entrance of his premises. He first showed us his well growing bedding plants in a house about two hundred feet long, which contained about ten thousand countable plants. He had a Begonia incarnata loaded with lovely light pink flowers; he prized it highly, and asked a dollar for a small plant, which seemed to us well worth it. After looking around for a while, we finally came to the Coleus, whose splendor fairly dazzled our eyes; they surpassed anything of the kind we had ever seen; to say that they were splendid, does not properly de-

scribe them. The brilliant coloring of these plants with their serrated and finely penciled leaves, fills one with admiration for that Great Painter whose work cannot be enriched by any living creature. Mr. Witham said that if those Coleus were in England, they would be worth several thousand pounds. Mr. Witham has hardly the language under his control to properly describe the beauty of his new seedlings; therefore, go and see them as we did, and you will be well rewarded.

We next visited MR. WILSON'S establishment, well known to all professional Florists. It is very extensive, employing nearly thirty workmen besides the foreman. The place first impresses you as a great manufactory; abundance and variety are on every side, and gives one the idea of a large trade and generous profits; but where genius and hearty sympathy with this world of beauty are made subordinate. The immense number of plants that fill all the houses, are seemingly enough to supply the whole country, and that too, with those that are most new and rare.

Not far from Mr. Wilson's, is MR. BRIDGE MAN'S place, which is leased for a number of years to WYGANT & LAWRENCE, two young Germans. Knowledge and industry are evinced throughout the establishment. They have a large number of well grown plants, and raise flowers to supply the New York Bouquet store. They have been very successful in their enterprise.

MR. BUCHANAN'S place, though often visited, will always be pleasing. This well-known establishment has become celebrated from its long existence, and the rare skill with which it is conducted. The splendid Camellias, Azaleas, &c., raised on this place, attest its age and good management. The Orchids, together with other tropical plants, embracing a large number of new, rare and beautiful specimens, are kept in a special apartment, and speak eloquently for their cultivator. To those who have had no opportunity to see Mr. Buchanan's Isabella Sprunt, I would recommend them to visit his rose house, and behold the great number of these beautiful canary colored roses.

Next we came to MR. DONETTI'S, the originator of those lovely Carnations, the "Astoria" and "Pride of Amator."

Every Florist has his own specialty or forte, in which he takes particular delight, and in which he excels—growing, without doubt, out of

the peculiar love he has for some plants or family of plants. Mr. D's Dracenas, Arecas, Euphorbias and Carnations were the best we saw.

His numerous houses, though nearly worn out, contained many rare and handsome plants. His lease expires soon. We hope Mr. Donetti has realized sufficient from his many years of hard labor, to enable him to erect new and better houses, from which he may give us many novelties.

Our day being well and pleasantly spent, we returned to our lodgings. In the evening we enjoyed some refreshments at the Atlantic Garden, while listening with great pleasure to some excellent songs from a Tyrolean Troupe.

The next morning early, we took a boat for South Amboy. After one and a half hours sail, we landed on a place filled with coal, railroad iron locomotives, machine shops, and promiscuous piles of freight. After a few minutes walk, we came to the dilapidated, lonesome, deserted looking village of Amboy. We inquired for the greenhouses of MR. GEO. SUCH, and learned that they were about three miles away. Shortly Mr. Such drove into town and kindly invited us to ride to his place, which invitation we gladly accepted, and soon found ourselves at his friendly home. The construction of his greenhouses and their contents were what we came to see. The more we examined, the more were we satisfied that we were in a model establishment. His houses are built *a la Henderson*, six in number, neat and clean. Even the painting has a soft, agreeable tint, which makes a pleasing contrast with the plants. Every plant counts, and they are as perfect as I have seen them in any place. Not only were his Verbenas very fine, but his Pelargoniums, Zonals, Petunias, Fuchsias and Heliotropes were all charming plants. Roses, Carnations and Azaleas were exquisite. His tropical plants and orchids were so well cultivated, and wore such a beautiful green, that it seemed as though I must be again in South America. Dendrobiums of enormous size; Eucharis Amazonica, with leaves as large as cabbage leaves; Ferns, with dark green and shining leaves—not a yellow spot or particle of dust was to be seen upon them. Mosses and Ivies of all forms, shades and colorings. We were surprised to find such a fine, vigorous and well trained specimen of Lapageria rosea ready to bloom, and a number of the newest and choicest imported Coleus. Mr. Such's

Tuberose bulbs were remarkably large and white, as though they had been bleached. Mr. S. says that they will produce a great number of flowers. He also has a very large stock of Gladiolus, some of the newest and handsomest known. His soil, which is white sand and clay, together with the cultivation which he gives, is unsurpassed in its results. In a little time Mr. Such will take rank as a first class Florist—in

fact, he is by many now considered to be well up to the best of them. His is a pattern institution, as all agree who visit it, and all are well pleased with the liberal dealing of the proprietor.

This finished our visit among the professional brethren, and a short day's ride brought us again to our home among the hills of Old Ulster.

EDITORIAL.

THE FUCHSIA.

We gave, under our column of notes in the last number, an account of a discovery of Dr. Hooker's, that the old Fuchsia, which we have always called *coccinea*, is not that plant at all, and that the real *F. coccinea* is one of our scarlet-plants.

We have no doubt but that Dr. Hooker could find many more mythical matters about Fuchsias, and especially that the story of the introduction of this Fuchsia would be one of a very apocryphal character.

It is said that the late Mr. Lee, the nurseryman of Hammersmith, England, was one day walking along some blind alley in London, when in an old piece of broken crockery, this Fuchsia was beautifully in bloom in a poor widow's window. She would part with it for no money, for her sailor boy had brought the plant in the fore-castle of the ship all the way from some foreign country. But Mr. Lee was allowed to take cuttings, and thus the introduction of this beautiful plant brought about.

We said recently that almost all popular fruits had a mysterious origin or some pathetic circumstance connected with their origin. Plants seem no exception; and if this story about the Fuchsia were true, it would be one of these miraculous things. That Mr. Lee found the plant where the story places it, is likely enough; but that it was stolen from some botanic garden by some garden laborer is far more likely than that a sailor had skill enough to preserve it for months in the fore-castle of a sailing ship on the long voyage from South America to an English port. Almost all of us who have been connected with large establishments, know of many mysterious disappearances, which if found, would most likely report themselves from some "foreign country" or any where, but where they really did come.

Our idea is, that the Fuchsia was first introduced through the Kew gardens, and, stolen

from there, became gradually distributed through the Messrs. Lee.

F. longiflora; *F. globosa*, a small round corolla-kind; *F. macrophylla* and *F. reflexa*, two species with very minute flowers, now nearly lost to culture; made up the collection of thirty years ago. About this time *F. fulgens*, a very remarkable long flowered form, with broad rich leaves was introduced. It was as much unlike the Fuchsias known, as could well be. Indeed, few but botanists would recognize it as one of the family. It was the parent of the race of hybrid distinct kinds which now so interest us by their variety and beauty. These originated in this way. The writer of this chapter, then a boy of 15, had been reading in the "Transactions of the Horticultural Society," an account of Mr. T. A. Knight's experiments in hybridizing Peas, which resulted in *Knight's Marrowfats*, and other well-known kinds. With a fondness for repeating himself the experiments of others, he went to the garden, and selecting two varieties, of Peas, hybridized them together as Mr. Knight had done. Going to the greenhouse he found the *Fuchsia fulgens* for the first time in blossom, and noting how abundant was the pollen, and perceiving how easily the Fuchsia presented its pistil for impregnation, it occurred to him to try the experiment with *F. fulgens* as the male parent on the *F. longiflora*, then blooming in the open ground. A flower was selected, the anthers cut off before the pollen cells had burst, the pollen from the *fulgens* placed on the stigma, and a small gauze bag placed over the flower to prevent any insect from interfering with the operation. A large black berry filled with seeds, resulted in a few weeks. These were washed out, sown on the surface of a sandy soil, covered with a piece of glass to keep regularly moist, and placed on a shelf on the forcing house near the glass. In a few weeks, the plants appeared, were potted off as they grew, and in the spring following were

all planted out into a cool shady garden border, where they bloomed during the summer following.

One of the most remarkable features about these seedlings was, that though in all about fifty—all raised by the agency of a single male flower on a single female pistil—all from one single berry, not two plants in the whole fifty bore flowers alike. None of them bore any resemblance to either of their parents, and all differed from one another. The physiological law of this variation has never been made clear to the writer. It is one of those many mysteries of nature, which though he has for thirty years watched for some key to unlock, it has never yet been his good fortune to find.

These wonderful hybrids created immense excitement amongst the gardening fraternity who saw them; and one of finest was selected to send to Dr. Lindley, who had about that time commenced editing the *Gardener's Chronicle*. That celebrated man expressed through his paper his great admiration of it, and his description of the flower "tube and sepals three inches long" was barely considered possible. Through Dr. Lindley, an offer came from Youell & Co., enterprising florists of Yarmouth, England, for the whole stock, which was sent to them; the variety named "St. Clare," after the name of the estate on which it originated, and in due time was "sent out." The orders which came in for it however, were so numerous, that considerable delay occurred in getting enough plants propagated to send out. In the mean time other experimentors entered the field, and St. Clare, was barely in the field time enough to claim priority with two others,—*Standishii*, and *Donniana*, which followed close after.

It is a remarkable fact, that with all the efforts that have been made to improve the Fuchsia since that time, no larger flowers, nor anything but shades of the same colors of these original hybrids have been produced. It shows that there is a limit to change; that the theories which some hold of unlimited progression is not borne out by facts; that in short, the theory which we have often urged, that improvement, though apparently unlimited in forms, can only go a limited distance in direction, is the true law.

We have gone thus minutely into the history of these hybrid fuchsias, not merely as a matter of curiosity, but as an item for the encouragement of young gardeners, who will find in a disposition to try experiments, much that will

not only prove of great pleasure and interest to them, but of much profit also.

Thus far we have written at the suggestion of a Massachusetts friend. Another from the same State, a lady of Abington, asks for a few hints on Fuchsia management, which we may as well incorporate with this article.

Those who have warm rooms or greenhouses, like to force a few old plants into early growth, and when these sprouts are about two inches long, they are taken off, and rooted for young plants. This rooting time will be about March or April. The little slips are put into pots of sandy soil, and kept in partial shade and in a moderate heat will root very readily. A heat of fifty or sixty will be enough to strike Fuchsias, although of course in a higher heat they will root more rapidly. Though this season is the best one to make nice young plants, cuttings may be struck at any time of the year.

The Fuchsia does not require a very high temperature; just above frost is sufficient. We have even known some fuchsias endure several degrees of frost without injury. But where large handsome plants are desired, a heat of at least 60°, with plenty of light and air, is necessary to get them.

The proper form to train Fuchsias has been a mooted question. We prefer the conical form. With a very little good management the plant can be made to take this form naturally, as it has a tendency to branch as it grows. Good rich soil, with full exposure of all parts of the plant to the light, is the good treatment referred to. If the young plant shows no disposition to make side branches, the terminal shoot should be pinched back. This will most likely have the desired effect, and one of the most nearly central shoots can be encouraged up to make another leader.

We have said the plant does not require a very warm temperature, indeed a high heat when dry, is not at all favorable to success. Hence during summer time, they do well in our climate only when set out in the hot season in partial shade; or at least if in the sun, where the leaves will have a chance to be continually moist. When near the cool spray of a fountain they do well, if not so close as to have the soil in which they grow saturated.

The soil need not be particular, any good rich garden soil will do, if provision is made to "well drain it" as gardeners say.

In the fall the plants may go to winter qua

ters at once when cold weather approaches. If the plant is woody, all the soft herbaceous matter may be cut away to the hard solid substance, and the pots set in a cool cellar, or under a greenhouse stage, or anywhere where they will not get absolutely dry. They must be kept cool however, for a very little heat will bring them forth, when they must have light. If for propagating purposes, of course this is all right,—but we are speaking of mere preservation.

Many persons prefer to have young plants every year, and when they have raised the young ones, throw the old stumps away. But the old plants, if judiciously managed, will make beautiful plants for many years. They have to be cut back so as to make the skeleton or frame work of the form we desire; and after they have grown just a little, are taken out of the pots in which they grew the season before, and with fresh earth, started again in as small pots as the roots can be got into. As soon as this small pot is filled with roots, it is to be put into one a size larger. This repotting may be done two or three times during the season, if extra good plants are desired.

The Fuchsia is very liable to lose its leaves. This nakedness is caused either by too poor a soil, or the presence of the Red Spider. These minute insects are kept down by an occasional syringing of the plant, which is then dusted with sulphur; when it arises from poverty of the soil, a top dressing of manure, or repotting as before suggested is the remedy; whenever there is any appearance of yellowness in the lower leaves, it is time to attend to these matters.

ABOUT PRUNING.

It is the fate of all good ideas to be pushed to extremes. Ever since the day when the ass broke into that Grecian vineyard and taught by his browsing, that some good followed summer pruning, thousands of leaves have been stripped off, and millions of vines injured by a too free use of the pruning knife. We have labored as sincerely as any, to show how much is lost in this way; and have pointed out that pruning as generally practised, tends to weaken vitality and pave the way for future diseases.

But we observe that some of our pupils are going to another extreme. Prune not at all, is getting to be a popular, but a too common cry; a little pruning, unlike a little learning, is not at all a dangerous thing.

Darwin has shown that there is amongst individual plants a struggle for life always going on. The stronger crowds out the weaker one; but so long as it lives, the weaker has some effect on the stronger one.

The same law is true of branches as of distinct plants, each struggles for light. The vigorous shoot shades the weaker; but that in turn somewhat interferes with the strong one, and prevents it from utilizing the light to the best advantage.

Thus it will be seen, that to have the best results, we must regulate this struggle in nature. A dozen branches well developed and having the ability to display all their leafy charms to the admiring sunlight, will be worth much more to the plant than double the number closely interfering with one another.

A good gardener must have foresight. He should be able to see in imagination the tree a year ahead of its real growth; and prune in advance of the necessity of the tree. This will prevent much of the temporary injury which undoubtedly flows from severe pruning all at once; and which if annually continued is a great evil.

ROOTS AND LEAVES.

An interesting question has arisen: which pushes first, roots or leaves? If we examine a seed as it commences to grow, we shall have no difficulty in answering the question. Roots always push first. In some cases the roots continue to grow and develop to a considerable size, before anything has been done above ground. In the case of the Hickories, the root—the tap root—will often be two or three feet long and over an inch thick, while the stem will be no larger or thicker than a thin knitting needle. The leaves have not had much to do with the development of these enormous roots, although they are essential of course, in maintaining the vital power while this great root producing force is in operation.

In root cuttings, fibres push from the roots long before any bud is developed; and in the case of apple trees that have been cut down, we have found portions of roots left in the soil, to be alive after three years, and with a certain though small increase in length.

It has even been asserted that Pine trees when cut off near the ground, have not only had the roots live many years, but had a perceptible in-

crease in the girth of the stump continually go on; but although this is continually referred to by writers as a fact, we have never been able to find any very good authority for it, or to confirm it ourself. We prefer to put this statement amongst those of which "it is said" is the name.

But that the roots in general grow before the leaves, is certain in the minds of all who have used their own eyes while digging evergreens in spring. In our district, the frost is out of the ground often in February, and the earliest possible digging after this, will show that the fibres have pushed perhaps the eighth of an inch since winter; if indeed they had not been growing all winter. Our evergreens show no perceptible leaf growth till the first week in May, and an increase in the length of the roots till that time can readily be traced. There is no doubt about the truth of the axiom, that the roots grow before the leaves.

OUR COLORED PLATES.

We are pleased to find that our colored plates are, as we anticipated they would, giving an increased interest to our magazine. The great

additions to our list of subscribers this season, we have no doubt are much due to these liberal attractions.

We wish to keep our readers in mind that the *Gardener's Monthly* was not started so much as a money making concern, as for an aid to gardening. We have never taken any extraordinary pains to advertise or push it; or made very strenuous exertions to induce people to write for it. We want to feel that it has the voluntary good will and support of all who read it.

These colored plates are given without any extra charge, for the same *two dollars* per annum, as before; and we think most will agree that in beauty they are nearly equal to those magazines of Europe for which \$5 per annum are charged.

We think we have a claim on our friends, to show the magazine to their neighbors,—and to all those who have little facts or fancies of horticultural interest, to contribute them for our pages. The briefest notes are welcome, when time does not permit of longer articles.

In our next we expect to give one of the handsomest plates of the series.

SCRAPS AND QUERIES.

TRANSPLANTING LARGE TREES.—*Subscriber, Pikesville, Md.* On page 84, Vol. XII, No. 3, at close of article on Transplanting Large Trees, you offer "to give more information on the following points:

Page 83, "a rope is fixed to the top of the trees and operations commenced by digging eight feet from the base of the tree, a circle two feet wide and at least two feet deep." Now it is not expressed whether the circle of which an eight feet line is the radius, indicates the *outer* or the *inner* edge of the trench to be dug. It is to be inferred from the expression on page 84—"a circle sixteen feet wide and two feet deep, seems a big task"—that the trench is to be cut two feet *within* the circle, having a radius of eight feet. (1). Again, "use digging forks to undermine the ball." Do you mean that you dig lower down than two feet from the surface, so as to leave a ball two feet thick and twelve feet in

diameter, or that you merely remove the earth from that ball and from around the roots of the tree by working from underneath instead of from above, and with a fork instead of with a spade. (2). And at the end of this operation is there a ball of earth and roots left and of what size, or only a mass of roots. (3). There now is a "common two-wheeled cart," the distance between the wheels of which is about five feet to be backed up? It could be run across the trench on boards, but the wheels must rest on the ball or on the roots of the tree, and if so, how can the tree be pulled over? I presume that the cart is run upon two long boards that extend clear across the hole; but your article does not explain that, nor can I now see how a ball or a mass of roots "twelve feet wide," would pass up between two boards that must be less than five feet apart. Perhaps the two boards on which the cart has been run up to the tree, may be removed, and one substituted for them placed un-

der the wheels of the cart, and at right angles to their line of march. (4). You will probably see from the above, that however clear the *mode of operation* in transplanting large trees may be to you, it has not been made so clear to your readers, and will, I trust, oblige with further explanation more than one.

[(1). This is right; but of course the width of circle will be regulated somewhat by the appearance of things. In some cases, four, five or six feet will do,—the idea is to get outside the circle of the roots, wherever they may be—better far away than too near—usually we have found in very large trees 8 feet a good distance.

(2). In large trees, the mass of roots will be about two feet thick, sometimes not so much; the tree will be *easier dug* by going deeper than the roots, whatever their depth may be.

(3). Only a mass of roots—*no earth*. For every few inches that the earth is undermined, the fork reduces the ball at the same time—undermining and reduction of the ball go on together.

(4). We see that we have omitted a point. It is very hard to give a detailed operation like this in a few words. But we ought to have said that before the cart or wheel is backed up the large tree has to be *raised to the surface*. This is done by the aid of the rope fast to the top of the tree. The tree is drawn to one side, and a little earth thrown under the elevated roots on the opposite side, then the tree is drawn back and earth put under the other side. This is repeated backwards and forwards until very soon the *hole is filled with the earth*, which has been thrown out, and the tree with its roots exposed stands upright on the top. By drawing the tree again on one side and to the other, broad planks are easily got under the roots and right across the hole now filled with soft earth, the width of the wheels, and then the operation proceeds as before described.

It will be a pleasure to explain further if not yet clear.]

OLD CUTTINGS.—We have supposed that cuttings of grapes which have stood one year in the ground without rooting, would be in a better condition to root than a fresh cutting just put in. A correspondent of the *Kentucky Farmer's Home Journal* suspects an opinion to this effect, which we gave some months ago, is possibly wrong. We shall be glad to have the experience of any of our readers on this matter.

DON'T GET THEIR PAPERS.—The *Manufacturer and Builder* notices the fact, that in many instances after subscribers have complained that they did not get their papers, whole bundles have been discovered at the respective offices, overlooked by the clerks. The papers are almost always sent from the offices, and subscribers should be sure they are not at the offices when *supposed* not to be.

HEDERA RÖGNERIANA, very commonly so spelled in many catalogues is a mistake; it should be *ragusina* according to a correspondent of the *Gardener's Chronicle*.

CYPRIPEDIUM.—C. H. P., Baltimore, Md. The species you send is *C. parviflorum*.

WAGES OF GARDENERS.—A correspondent in the west asks for the average wages of Gardeners. In this State, the average rate would be \$50 a month with house and vegetables.

POLE-CATS OUTDONE.—It was recently announced at the New York Farmer's Club, that the most wonderful results followed an experiment of Mr. Quinn's, in regard to putting a Pole-cat at the root of a pear tree. But recently Mr. Elliott announced that the "carcasses of a great many beeves" buried about some Hartford Prolific grapes, produced at Detroit the most astounding crops.

PEAR CULTURE.—Since the appearance of Dr. Houghton's essay in the *Gardener's Monthly*, the deep waters of pear culture have been stirred to their utmost depths. Almost every agricultural journal finds the big waves lashing its inky shores.

The *Practical Farmer* has had considerable drift thrown into it,—not the least interesting was a deposit from Friend Middleton's Pear orchard at Darby. Mr. Middleton is a decided grass man, and has astonished the clear surface by the figures from his Pear trees. The branches have to be propped to keep up the weight of fruit. In a late number, in reply to attacks on his system he says he has about 800 trees under this kind of culture, "many of these trees yield from 10 to 15 baskets of Pears each year, bringing readily from three to six dollars a basket."

So determined are the opponents of grass cul-

ture that the grass shall not have the benefit of these Pears, some of them insist that "it is the vapor from the Delaware River" that does the business! Strange, that the vapor should miss the trees not in grass in the same vicinity.

THOMAS' PATENT SMOOTHING HARROW AND BROADCAST WEEDER.—Great improvements have been made in this class of implements. Judging by a circular before us, we think this one will be a valuable addition to the list.

BEES ON RASPBERRIES.—C. G., Philadelphia, asks: "Is it true (as is said by some of my neighbors who have raised Bees) that the action of the Bee on the pollen of the Raspberry, prevents that fruit reaching perfection? That if you keep Bees you may as well give up all hope of raising raspberries."

[Bees are rather a benefit than an injury. Sometimes the flowers are barren on account of the imperfection of the pistils; but with this of course the Bees have nothing to do.]

DAISY "RED ROVER."—Specimens of this beautiful large deep crimson red seedling, has been sent us by the raiser, Mr. Chas. J. Powers, and is the best daisy we have seen.

RAMIE.—Dr. Hooker writing to the *Commissioner of Agriculture*, says that the name of the Ramie is *Bahmeria nivea* and *B. tenacissima* is not essentially different.

DESIGNS FOR FLOWER BEDS.—A very interesting feature in *Dreer's Garden Calendar* is a colored plate of flower beds, eight in number, with the list of plants with colored leaves or flowers to suit. They will much assist those who have taste for these beautiful styles.

THE DEODAR CEDAR.—We saw recently on the grounds of Mr. Ed. Tatnall of Wilmington, Delaware, a fine specimen of this tree. It is now the only fine one that we know of. One after another those in other places north of this, that were once famous, have succumbed to the cold winters; and it will soon be known only in the greenhouses of the curious. We do not know how it is doing south; but we suppose the climate will be too hot for its perfect development. In England they were nearly all killed off by the

hard winter of 1860. A few lived through, but they do not appear to have fulfilled their early promise of very great beauty. The Cedar of Lebanon is considered superior.

CORN COBS.—It is curious to note how names change with different countries. In England, wheat is called corn, while our corn is maize. By the following extract from a paper on maize culture in England, it will be seen that they are retaliating. We should be rather puzzled to eat corn "cobs" here.

"In October the cobs will be ready for table use; they will then have the grains of about the size of and consistency of marrowfat peas, and will take about 30 minutes to boil. Fresh butter is spread over them when ready. For children and invalids they are most nutritious, being in fact, the basis of all the expensive preparations used. They also supply a valuable table vegetable in the autumn equal to peas."

THE WHITE SPRUCE.—M. L. Dunlap thinks that the White Spruce will ere long supersede the Norway Spruce as an ornamental tree, and thinks this variety of the spruce should receive more attention by nurserymen.

[Though not sure about the superseding of the Norway Spruce, we quite agree with Mr. Dunlap that the tree has not received the attention its great beauty deserves.]

CREDIT TO HEARTH & HOME.—"One of the Editors writes to us: "On page 58 of *The Gardener's Monthly* for February, 1870, you quote from our paper of January 22d, an allusion to an article on *Dionæa muscipula*, which you seem to suppose is one published by you. The reference was to an article which appeared in our issue of August 28th, 1869, a copy of which I mail to-day to your address. Unless you can show that our article on the *Dionæa* was copied from the *Gardener's Monthly*, you seem to have done us an injustice, which I am persuaded you would not knowingly do. Please examine our article in No. 36, Vol. I, and let me hear from you."

[In our volume for 1868, we published Mr. Canby's remarkable discoveries in *Dionæa*. August, 1869, the *Hearth & Home* manufactured a whole article out of it, and now has the assurance to claim it as "our article." We received a note from Messrs P. B. & Co., after our last was published, asking to be referred to the pages

where Mr. Canby's paper appears in our magazine. We gave the pages. As this letter was received subsequently, and no reference has been made to the matter in *Hearth & Home*, we thought best to publish it with this explanation, so that our readers may judge whether or not we have done that paper any injustice.]

HALES' EARLY PEACH FOR FORCING.—In a private note, Mr. T. J. Pullen says: "My Peach house is in fine condition now, the peaches being nearly through the hardening process. I expect to have ripe Hales' Early by the 1st of May. The Hale's is a most excellent variety for orchard house culture, I prefer it over all other varieties which I have tested."

RASPBERRY ROOTS.—A. P., N. Y.—Will root cuttings of raspberries do well if carefully planted and tended, and do you recommend the plan to increase stock for a plantation?

[Most new raspberries are raised from root cuttings, though some push up buds easier than others. Varieties of the American Blackcaps grow with difficulty in this way. The European varieties root very easily. Usually they are grown in hot-beds; but if long pieces are used and set upright with the tops level with the surface, they will do pretty well in the open air.]

HEMLOCKS FROM THE WOODS.—A. P., Scipioville, N. Y.—Will Hemlock Spruce do well if planted for a hedge, when plants are taken from a forest?

[In their native places, young Hemlocks are shaded from dry winds; and the partial shade makes the leaves so tender, that when removed to the open air, the sun and wind are too strong for them. It is better therefore to plant from the woods rather thickly and somewhat shaded for a year or so, and inure them to their changed conditions gradually; then plant in the hedge the following year.]

COOL SOIL.—A western writer says of an address by the Editor of the *Monthly*:

"Mr. Meehan tried to make a strong point in favor of his theory, by showing that soil covered with grass was cooler than that exposed; I can see no benefit to the plant from this fact. I know that nearly all plants while growing need

a cool soil for their roots, but while fruiting and especially ripening their fruit should have the soil warm, or nearer the temperature of the air."

[It is singular to note how the "Doctors differ" in their opposition to "Meehan's theory." Mr. Barry at the time referred to, objected that warm soil to the roots was a benefit while the plants are growing, and instanced the general value placed by gardeners on bottom heat. This gentleman advocates cool soil while growing.]

SOWING AT THE FULL OF THE MOON.—W. S., Bardstown, Ky., asks: "Would you be kind enough to give your opinion in the *Monthly*, in regard to the custom of many people to plant or sow vegetable seeds at the different phases of the moon. This custom is so prevailing in this neighborhood, that it is of no use to say anything against it?"

[Scientific men say that the moon does exert an influence over vegetation, but so slight is that influence, that it is better to sow when everything else is ready, than to wait until the moon alone is ready.]

MR. TAPLIN OF ENVILLE PARK.—There are few places in England more famous for gardening excellence than Enville Park. The present gardener there, Mr. Taplin, is amongst the ornaments of his profession, esteemed alike by his employers and all who know him. It is very rare that one in his position resigns all for pure love of the United States, yet we understand that such is his intention, and that he will be here in a few weeks. It is an excellent chance for those needing a first class gardener, either in a private capacity or in an enterprising nursery.

We will cheerfully forward to him any letters that may reach us.

SEEDLING CARNATIONS.—C. J. P., South Framingham, Mass. "I send you this day by mail, specimens of four Carnations, which I have raised from seed; these are the first blooms. The white with the crimson edge does not open well, but I think it is owing to the situation it grows in, and hope to get better flowers in the future."

[These were very good flowers. The one referred to will never probably recover the defect of bursting its calyx. It is always a great point gained in seedlings to get them with a whole calyx. The others are perfect in this respect, and are therefore the more valuable.]

PAYNE'S TREE HOLDER.—We made our illustration from a description furnished by our correspondent, who writes after seeing our figure, that it need not be as heavy as we have made it.

ERRATA.—In Prof. Russell's paper on Fungi, in our February No., "Lycoperdi" should read *Lycoperdon*; "Hystarium" *Hysterium* and "Unedo" should be *Uredo*.

BIRDS ON PEAS.—H., McGregor, Iowa "Can you tell me of any practical way by which I can keep the birds from eating my green peas? Last season we could scarcely get a mess of the choice kinds, the birds taking them just before they were fit for the table. They showed a nice discrimination too, hardly touching Laxton's Long Pod."

[We can suggest no remedy. Those who are troubled with birds on any particular crop, usually plant it near where people constantly passing keep birds away. Others who have crops of fruit or seeds large enough to warrant the expense, employ a boy at 25 or 50 cents per day to frighten them during the critical time.

This last is a very effective plan, and where the extent of the crop warrants it, is the cheapest of all plans against birds.]

DISEASE IN PINE TREES.—Mr. Manning, Harrisburg, Franklin Co., O., writes: "Enclosed I send you sample of *Pinus pyrenaica* leaves, it is affected with a disease of the leaves. First the Laricio became affected, then the *pyrenaica*; they present a very sorrowful appearance, the leaves turning brown, the disease commencing at the lowest limb and working upwards. I think I have seen mention made in a former number of the *Monthly* of similar attacks. Have any further facts been discovered in regard to the disease about Philadelphia, and has any remedy been discovered, and how has it terminated? Only those two varieties are as yet affected; many of the leaves are half brown, and many others all brown. I am as yet at a loss to know whether it is a disease of the leaves or the work of an insect.

[With this letter Mr. Manning sends us specimens of a disease in Pines which has long puzzled us, and one about which, after exhausting every source of information, we feel we know really nothing. The ends of the Pine leaves become brown, and brown spots are mixed amongst

the green; and this continues to spread as long as the warm weather lasts. A beautiful little fungus bursts through the tissue in places; but it is not clear whether this is a consequence or cause of the disease. The oldest and weakest leaves are always the injured ones, which would indicate that the fungus is rather a consequence than a cause. It also seems to be contagious. We guess the trouble is at the root; but this is only a guess.]

BRANDY FROM TOMATOES.—M. D. H., Quitman, Miss. We do not know anything more of this than we have already given in our pages. Probably a note addressed to Mr. J. S. Williams, Cinnaminson, N. J., might be of service to you.

NAME OF PLANT.—P. B., Brooklyn, N. Y. "The 'Aloe' you sent is not an Aloe, but *Cras-sula*, or perhaps more properly *Rochea falcata*."

It does not flower with you perhaps, because you have it in too much shade. It is one of those old fashioned, beautiful, and too much neglected plants that seem to delight our good friend Joseph Amram. Grown in a pot of rich soil, and plunged in a sunny place in the open air, it flowers freely. Its large heads of crimson flowers well repay any extra care. It is one of those plants which propagate themselves from leaves. Very easy raised and contented with little, it deserves to be more popular.

AMERICAN LAWN MOWER.—A friend of ours in London, thought to buy some carpets for his house in Philadelphia, superior to anything he could get at home. The carpet manufacturer he applied to was a personal acquaintance, and somewhat startled our friend, by assuring him that he could buy carpets better and to better advantage of the McCallum's and Orne's of his vicinity than could be furnished him in London.

Something like this is the case with mowing machines. We heard many people say last year that American lawn mowers were good for nothing and that they had to send to Europe for English ones. But the *Gardener's Chronicle* tells its readers that the American machine with its knives constructed on the archimidean screw principle, is so superior to the English, that their most celebrated machines are of little account in comparison.

People can often better themselves considera-

bly by adopting the good things of other countries; at the same time it is not well to imagine that there are no good things at home.

GRAFT HYBRIDS.—*M., Logansport, Ind.,* says: "I have read the articles on the sour and sweet apples, and kindred topics which you have given in the magazine with much interest. I have always supposed it impossible, and was surprised to note that you give in your adhesion to such a doctrine; but perhaps you have come across more facts than I have. It would, I am sure, interest many readers to have your further views."

[Our friend is mistaken. We have not "given in our adhesion" to the graft hybrid doctrine; but we do hold that the facts stated by good observers, are so apparently well founded, that it will not do to hold the thing impossible. We wait for more facts.]

AZALEAS AT THE HORTICULTURAL SOCIETY.—Our reporter in making notes of the last exhibition of the Penna. Hort. Society, had but a few minutes to take them, and perhaps omitted to do justice to some things. The Azaleas must have been better than the report indicated, as a special premium of \$5, was awarded to their exhibitor, Mr. Buist, for them. We have frequently noted in the *Gardener's Monthly*, the excellence of Mr. Buist's Azaleas. Every care is taken to add every good new kind to his list.

MAHONIA SEED.—*A. P.,* asks: "Should seeds of the Mahonia be sown in open ground?"

[These may be sown in the open ground; but it is necessary to shade them the first year, and to protect them from severe winter weather, for two or three years. The best way is to sow in strong boxes and germinate under a shaded frame; and keep in the box a year or so before planting out in the open ground.]

MR. STRONG'S HILLSIDE HOUSES.—Under date of March 19th, Mr. Strong writes: "We are in mid winter, buried in snow. I am glad to report that my hillside houses endure any amount of snowdrifts, and give me increased satisfaction. Especially the house of last fall seems to me to be a model"

OBITUARY.

During the past month death has taken away several friends, whose departure is worthy of note.

MR. JAMES BISSETT florist, of Philadelphia, died suddenly of heart disease. He was well known as amongst the first to introduce cheap roses, by the plan of great heat and summer layering under glass. As a rose grower he stood high, as the frequent premiums obtained from the Penn. Hort. Society testifies. He was a good man in every relation of life.

ELIAS DIFFENBAUGH.—Mr. Diffenbaugh was one of those remarkable men, whose natural talents overcome obstacles, which frighten those of weaker mould. He was a native of Lancaster Co., a journeyman printer by profession, and imbibed a love of flowers from Prof. Porter, now of Lehigh University. Many years ago he became stricken with consumption, but turned his attention to Botany, which by affording him plenty of out door occupation, and aiding him to a cheerful happy disposition, no doubt prolonged his life many years.

The success which attended his botanical studies was so great, that he was elected by the Academy of Natural Science, of Philadelphia, a life member of that Institution, without his paying the usual heavy fee required; and he was subsequently elected to the honorable position of one of the Botanical Committee of that Society. His disease at length growing on him, he removed a few months ago to Freeport, Ills., where he was when he died.

MR. SETH BOYDEN, of Newark, has also disappeared from life's stage. In connection with seedling strawberries, his name will long be remembered. Green Prolific and Agriculturist, are two of his seedlings, which will maintain a preeminence for many years to come.

He was one of the most prominent men in his city; always alive to every interest that would tend to its advancement. He was always simple and unaffected in his tastes, presenting a marked contrast to the extravagances of the present generation.

BOOKS, CATALOGUES, & C.

HARNEY'S BARN, OUTBUILDINGS, AND FENCES. Published by Orange Judd & Co., through Claxton, Remsen, & Co., Phila.

A beautiful barn or outbuilding—one ornamented in good taste—that is, embellished in a way that is not discordant with the purposes for which it is intended, is perhaps a much rarer sight than a good house or garden. The want is felt for something better than a few boards nailed together, or an ugly mass of stone or brick, and the attempt is often made to "do something" in this way, and they usually do "do something." We have improved Barns and Stables, but they are generally mistaken by passers by for hospitals or meeting houses, rather than as shelters for cows or horses, or places "where the farmer garnereth in his grain."

Mr. Harney is not altogether in the advance in this line of literature. John J. Thomas has been a good worker in this field; but no one has dared so much for the cause as our present author, and publisher, in presenting this beautiful work to the public.

Full drawings and descriptions are given of every building likely to be required on the best ordered farm, and the book is gotten up in such beautiful style, that even though a library were filled at the instance of an ignoramus, by "contract for so much," this would surely be one that would please.

HENRY COURTLAND; or what a Farmer can do. By A. J. Cline. Published by J. B. Lippincott & Co., Philadelphia.

This is a novel of about four hundred pages octavo, evidently written with the object of showing that a farmer's life is the one the most conducive to happiness. Some young men seek their fortunes in the newly discovered riches of California, others stay at home on the homestead,—but after a weary battling with the world, the former are glad to return like the prodigal son of old, to the fatted calves of their father's home.

The providential circumstances which continually arise to give life to the plot as the story progresses are too numerous to affect one with any sense of naturalness,—yet the author manages to keep up an interest in the fate of all his leading characters to the last, which is a decisive proof that the book is so far a success. There is no young man or woman, but will read it with great interest, and it will assuredly be welcomed to every rural library. But we fear

it will not have the effect intended. "What the farmer can do" occupies a very small space in the tale,—what the Rovers attempted, most young farmer boys would be rather induced to try; for most boys think they can do what others fail in, and the love of adventure always has charms.

TRANSACTIONS OF THE MASS. HORT. SOCIETY.

We are late in acknowledging the receipt of the last volume of the transactions of this time honored institution.

THE COUNTRY GENTLEMAN.

We value very highly the complimentary letters received from correspondents. That we seldom refer to them in our pages, is not because we fail to appreciate their kind estimate of our labors; but because they are so numerous and warmly expressed, that we cannot choose between them. The following however, in reference to a contemporary agricultural journal, from a correspondent in Chautague Co., New York, we feel less modesty in publishing. We make the extract, because outside of any comparison with other excellent agricultural magazines, there is no question but it is one of which all who value the good name of American agriculture is proud. Our correspondent says: after his good opinion of the *Monthly*, "and the *Country Gentleman* seems to me to contain the pith and power of the agricultural literature of this country."

THE FOMOLOGIST

Is a new monthly published at Des Moines, Iowa, and edited chiefly by Mark Miller, well known by his former connection with the *Homestead*. The numbers so far issued, exhibit great intelligence and industry, and it will take rank with our best horticultural magazines. Though by its name one might suppose it to be devoted to fruit culture alone, it seems to embrace all other branches of gardening. Dr. Stayman our valued correspondent is editorially connected with it.

THE GERMANTOWN TELEGRAPH

Recently celebrated its fortieth anniversary. It must have a good constitution to survive that long. The mystery is that notwithstanding its

great age, it shows no signs of decrepitude, but is to day as fresh and vigorous as ever. It is clear that if Ponce de Leon failed to find the Spring of perpetual youth amongst the waters of the Mississippi, some of our newspapers, like the *Germantown Telegraph*, have come near discovering the great secret. We were about to say "long may it live," but that is superfluous.

COLMAN'S RURAL WORLD,

Usually the Bantam amongst the fowl kingdom, crows as loud as the Shanghai, and rather feels the prouder for his little size. Our agricultural papers do not go by the same rule. They have swollen themselves enormously of late years. *Colman's Rural World* of St. Louis, is the last to adopt the quarto form. We are glad to note its increased success.

NEW AND RARE FRUITS.

TETOFSKI APPLE.—We have noticed this several times. Mr. D. W. Adams says of it in *Iowa Homestead*: "It is a great prize to us of the far North-west. It is very early (a trifle earlier than Red Astrachan), good size; always fair; a very young bearer, and enormously productive. It also is at the very head of the best for hardiness, ranking with the Siberian crabs and Duchess of Oldenburg in one respect. I consider myself very fortunate in having this comparatively new and rare sort in bearing in a situation so exposed as to thoroughly test its many good qualities."

THE WARFIELD APPLE.—Mr. Suel Foster says in *Western Pomologist*: "It is generally known that I propagated the Warfield Apple, a new seedling of this place, and I have spread it over the country pretty widely, from Maine to Nebraska; and I am not ashamed that I have done so. I have about 50 of the trees in my orchards, the oldest of which are budded on seedling stocks, eight years growth; one tree bore at two years and it has borne every year since; half the others bore at three years and nearly all at four. They are remarkable young bearers and the tree is the most perfect apple tree I ever saw. The branches form a knot that will never be likely to split off. Its growth is exceedingly rapid, yet it appears as hardy as anything I have. Such a fall as last, it is apt to burst the bark at the ground while young in the nursery. The fruit is large, round and fair, and exceedingly handsome; very light delicate yellow, with light beautiful blush in the sun; flesh a little coarse, firm and hard, subacid; quality, second rate, good cooking in July and August; keeps through September, though it often rots a little

on the tree, particularly last season, though it was large and fair.

BARNES MAMMOTH STRAWBERRY, is spoken of by the *Horticulturist* as the best substitute for Wilson, that the Editor has seen.

MARENGO SIBERIAN WINTER CRABS—From Mr. Andrews, reached us early in April, in excellent condition.

THE ARCTIC PEACH.—In the North-west they have a variety called the Arctic, which seems very popular; but we have no description anywhere of its peculiar character.

VICTORIA GOOSEBERRY.—At a recent meeting of fruit growers at Old Mission, Mich., Mr. Curtis said: "One kind of gooseberry called Victoria never mildewed; a smooth variety, not very large, stalk quite clean; thorns not numerous, but sharp, inclined to bend over. I saw the same variety in Illinois which did not mildew."

ELLISDALE RASPBERRY.—This variety originated in Pottawatomie County, Iowa, and is truly a western sort. The plant in some resembles the Black Cap family, being propagated by tips, but the fruit has a similarity to the Antwerp class of berries, being reddish purple in color and of a most delicious flavor, far excelling that of the Black Caps. It is very productive, but rather too soft for distant marketing. For home market and for family use it is not excelled by any variety that will endure our severe climate. The plant and fruit are somewhat sim-

ilar to the *Purple Cane*, though the plant is a much more rampant grower, and the fruit is much larger and finer flavor than that variety.
H. A. TERRY.

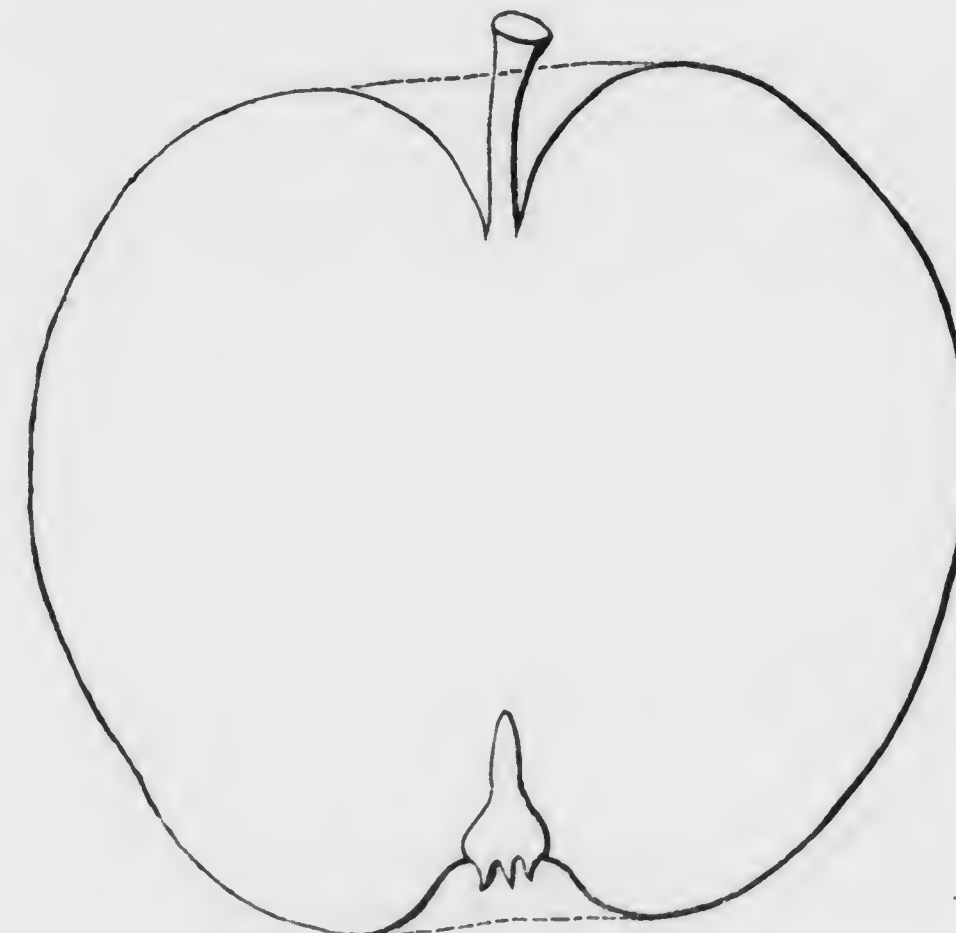
TWO NEW TENNESSEE APPLES.—

KINNAIRD'S CHOICE.

Through the kindness of my friend, J. S. Downer, of Fairview, Ky., I received specimens of Kinnaird's Choice and Hatcher's Seedling, both of excellent quality and handsome, also, an enclosed letter from D. B. Cliffe, of Franklin, Tenn., in which he writes, that Kinnaird's Choice origi-

nated on the farm of the late Michael Kinnaird, Franklin, Tenn., about fifteen years since, and is thought to be a cross between Winesap and Limber Twig. Tree a thrifty, vigorous grower, not very upright or regular, but similar to Winesap; an early and an annual bearer, but produces heavier crops alternate years. The fruit is at its best in January, and its attractive appearance and fine color make it very saleable in market.

Fruit of medium size, oblate, inclining to conical, slightly angular or obscurely ribbed; sides sometimes unequal; skin yellow, almost



[HATCHER'S SEEDLING].

covered with dark, rich red, and thickly sprinkled with small light dots towards the crown, and larger ones and less number near the base; stalk short and small, inserted in a wide, deep cavity; russeted, sometimes by a lip calyx closed; segments short to a point, sometimes rather long and irregular; basin large, deep, furrowed; flesh yellowish, half fine, crisp, tender, juicy, mild, rich, sub acid, slightly aromatic: quality very good; core small.

HATCHER (*Hatcher's Seedling*).

D. B. Cliffe says: "This fine apple originated on the farm of the late O. C. Hatcher, near Franklin, Tenn., and by some is preferred to

Kinnaird's Choice, and is one of the most popular apples in middle Tennessee. Tree very vigorous, upright, and more rapid in growth than Kinnaird's Choice, and a very sightly tree and bears good crops. Fruit medium size, roundish, slightly conical, slightly angular, skin very dark, rich red, almost purplish, sprinkled with a few light dots: stalk short, and rather small, inserted in a medium or rather small cavity, slightly russeted; calyx open; segments short, erect, divided; basin of medium size, slightly plaited; flesh yellow, fine grained, rather compact, juicy, mild, pleasant, and sub-acid; almost sweet; quality very good; core small. Ripens January and February.—CHARLES DOWNING.

MISSOURI PIPPIN, (Syn. *Missouri Keeper*).—Fruit, medium; weight 6 to 9 ozs.; form round, irregular, oblique; skin smooth, shining, yellow, mixed, shaded, marbled and striped with light and dark red; dots numerous, small, gray; stem medium to short, slender; cavity regular, wide and deep, eye small, nearly closed; basin abrupt, deep, regular, furrowed; core small, compact; capsules medium; seeds small, short, plump, quite dark; flesh yellow, tender, juicy, pleasant, sub-acid. Quality only good; use, market and kitchen. Season—January to July. Dr. War-der says: "Specimens cut on the 25th of June were in perfect condition." Tree vigorous, healthy and hardy; bark, dark brown; very early and abundant bearer. Origin, supposed to be Missouri.

We consider this apple worthy of cultivation in Kansas and Missouri, it being such an early and abundant bearer and quite handsome, will always command a fair price. Excellent for shipping in the spring on account of its fine color and great keeping qualities. — *Western Pomologist*.

MATHEWS No. 13—Is a grape which, says the *Western Pomologist*, proves of first quality and indicates great adaptation to the climate of that region. It is a whitish green, with large, rather oval berries, and bunches as large as Concord.

It was received from Mr. Rogers, of Salem, as one of his regularly numbered kinds; but proves to be different from any of them.

MINER PLUM.—Mr. Budd, in *Pomologist*, shows how this differs from Chickasaw. The shoots and fruit are double the size. It escapes curculio chiefly through lateness of forming its fruit. The leaves are very different in the two kinds.

LAURENEL PEACH.—Says a western paper: A new seedling peach is announced christened the "Laurenel," in Monroe, Ohio. It is said to be about the size of Hale's Early, a week or more earlier in ripening, much finer flavor, does not rot on the tree, &c.

THE WESTERN TRIUMPH BLACKBERRY.—This is a chance seedling found upon the open prairie in Lake County, Ills., in 1858, by Mr. Biddle, of Waukegan, Ills., and by him removed to his garden, where it has since that time

proved hardy and very productive, not being injured when Kittatinny and New Rochelle have been killed. The fruit is medium to large, very abundant, roundish, elongated, obtuse in form; granules coarse, large, apparently firm, yet very rich and sweet, carrying well and without any harshness of core or acidity so peculiar to New Rochelle, Wilson, &c., &c.,

The leaf is very broad and thick, irregularly, and rather coarsely serrated; spines abundant, stiff and strong.—F. R. ELLIOTT, in *Rural New Yorker*.

LEAF'S LADY APPLE.—We have received from Dr. Leaf of Philadelphia, specimens of a seedling apple which will be a popular companion with the well known Lady apple in common cultivation. The fruit is rather larger, and some of them take on an ovate instead of the regular depressed globose form. The color is not so deep a red, and the yellow on the shady side is interspersed with stripes and splashes of red. It is easily distinguished by the stalks, which are double the length of the common kind, projecting beyond the cavity considerably. The flesh also is yellow and sweet.

It is in excellent eating condition at this season (April 20th).

McAFEE'S NONESUCH APPLE.—Dr. Housley of Leavenworth, Kansas, in a note to Mr. Phoenix, says; "Yours of the 10th, inquiring what I know of McAfee's Nonesuch apple, Large Striped Pearmain, Winter Pearmain, Park and Missouri Pippin is at hand. In reply, would say, that McAfee's Nonesuch was raised from seed, sown in 1773, at McAfee's Station, in Mercer Co., Ky., on the banks of Salt River, some 5 or 6 miles from Harrodsburg, by the McAfee company, who came from Va. to Ky. in that year. The apple has been known and called by that name for over 70 years, and has been disseminated throughout the N. E. of Ky., Indiana, and Missouri. In Illinois, about Quincy, it is known as McAfee's Red Large Striped Pearmain, is the same apple, having received the above name from Col. Allen, of Holly Spring Nursery, in Nelson Co., Ky., about the year 1840. Allen got it of John Lightfoot, and Lightfoot got it in the McAfee neighborhood. Col. Allen thought, however, the Large Striped Pearmain was more descriptive of the apple than any

other name, hence he called it that. These facts I had from Col. Allen himself in his lifetime. Winter Pearmain is the same, and the name under which I first got it of Col. Allen, in 1836. Park is also the same, have been introduced here from Ky. The Missouri Pippin is an apple with which I have but little acquaint-

tance; I saw it in bearing last fall, for the first time. Will send you a few scions of it soon to give you a start. When I shall have obtained all the historical facts necessary in regard to McAfee's Nonesuch, I intend to publish it in some of the periodicals, thereby suppressing 10 to 12 spurious synonyms."

INTELLIGENCE.

SHELTER FOR PEAR TREES.—A correspondent of *Western Pomologist* says: I am going to try Captain Matthews plan of raising pears by intermixing evergreens with them. In fact, I had commenced a new pear orchard in this way two years ago, by setting evergreens on the north and west; and now they be on the south and through among the pear trees.

NURSERIES OF CHEATHAM & CLEMENT AT NASHVILLE.—The *Nashville Union* say: We have hitherto, owing to a press upon our columns, failed to notice the extensive nursery of Messrs Archer Cheatham & Clement, known as the Richland Nursery, five miles out on the Harding pike, and on the Northwestern railroad. There are 100 acres of beautiful fertile land, devoted extensively to nursery purposes.

A GOOD BOTANIST.—A Western paper says: Mrs. T. H. Keeckler, M. D., of Cincinnati, is the best female botanist in the country. Her collection of preserved plants is wonderful to behold.

THE PEA WEEVIL.—The Pea Weevil (*Bruchus pisi*) might easily be kept down to a moderate number, if pea growers could be moved to adopt a right method. I never plant a pea with a live weevil in it. I keep the peas two years, then of course the weevil is dead; and I take care they do not escape before they die; consequently, instead of having a bug in every pea, and eating as many bugs as peas, a large number of the peas are free from them, and are, therefore, pleasanter in idea if not in taste; and we have some finer seed than we should have if we planted bugs as well as seed.

As our neighbors cannot endure to provide seed two years in advance, they all plant bugs, or let their bugs escape; and, consequently, we are supplied with bugs from their gardens; but we do not have them so soon, nor in such numbers, as we should have by the usual plan. I dry the seed peas until I think they will not mould, and then I put them in bags and hang them up in an airy place, taking care to tie the mouth of the bags close. Then, that they may not become too dry about Christmas, I put the peas into bottles and cork them, and let them remain until the second spring afterwards. The peas are not in any way injured by being two years old. I have had three year old peas grow very finely.—*Am. Entomologist*.

INTERESTING EXPERIMENT.—A recent work of science gives the following novel experiment, which settles a question of some importance in philosophy. Two hundred pounds weight of earth was dried in an oven, and afterwards put into an earthen vessel. The earth was then moistened with rain water, and a willow tree, weighing five pounds, was placed therein. During five years the earth was watered with rain or pure water; the willow grew and flourished, and to prevent mixing with fresh earth or dust from any source, it was covered with a metal plate, numerous perforated to admit air only. After growing in the air for five years, the tree was removed, and found to weigh 169 pounds plus, and the earth in the vessel being removed, dried and weighed, was found to have lost only about two ounces of its original weight. Thus, 164 pounds of woody fibre, bark and roots, were certainly produced; but from what source unless from air.—*Ohio Farmer*.

TIMBER IN INDIA.—Dr. Richardson communicates a paper on this subject to the Edinburgh Bot. Society, of which the *Gardener's Chronicle* gives an abstract.

The Great Indian Peninsular Railway Company has commenced the importation of sleepers from Australia. The variety of timber fixed upon for this traffic is the "Jarrah wood," which is said to be excellently adapted for laying the permanent road of railways. If that be found the case, we shall probably see a new and considerable trade springing up between the Australian continent and India. The peninsula has little as yet except the main lines of the traffic system, and thousands of miles must be prepared for the "iron horse" before her cotton-fields and rice-fields can be fairly brought within the range of commerce. India possesses coal, iron, and almost everything else, but she does not produce a good timber-tree for sleepers. Though nothing can be better than Sal and Teak when properly seasoned, neither of these can now be had in sufficient abundance to satisfy the steadily increasing demand. The Pine and Fir grow only upon the upper peaks of the mountain ranges; the Teak forests, which are distant from Bombay have been a good deal overworked of late—while the wood is hard to work, and costly. The commonest tree in Western India is the "Babul," a species of acacia (*A. arabica*), with a black trunk and fragrant golden blossoms; but it almost always grows very crooked, and its wood is excessively tough. There are, of course, great forests throughout India, and everywhere may be seen groves of superb Mangoes, Tamarinds, Peepul, Jack, Silk-cotton, and other trees, besides Date and Cocoa-nut Palms; but most of these are too valuable, and none of them are suitable for sleepers. Thus, the importation of foreign wood has always been a large element in the cost of railway making in the peninsula. Thousands of loads of Norway Pine have been brought all the way from the Baltic to Bombay, Kurrachee, and even Calcutta, cut into sleepers, and kyanized to keep the white ant away. It has been necessary to pay for this immense sea transit, because neither stone nor any other material will serve the purpose so well as the solid but slightly elastic beam of Fir wood. Along the Indian lines, Bamboo is a good deal employed for telegraph posts, and such other native wood as can be obtained is burned up in the furnaces of the locomotives for fuel. But this scar-

city of light timber is a serious matter for Indian engineers; and if it really is the case that in the Jarrah-tree Australia grows the very thing wanted, it is quite likely that a new source of prosperity is opening for the Australians, and that a steady Indo-Australian commerce may be the result.

REPORT ON THE REGIONAL AND HYPSONOMETRICAL DISTRIBUTION OF THE CONIFERÆ.—

By Robert Brown, F. R. G. S. This paper was the result of the author's studies regarding the geographical distribution of Coniferæ over the globe, and the laws regulating that distribution. The result of his researches had gone to prove that the Coniferæ had resolved themselves into several natural groups, which he denominated "provinces;" and that these provinces might again be subdivided into lesser geographical groups, called "regions;" these regions, finally, being composed of local arboreal floras, which might be called "districts," distinguished by the prevalence of some particular species, not found out of the range embraced by this district. He then described these geographical provinces of distribution, and gave the provincial limits assigned to them, with lists of the species frequenting each, and the altitudinal range of the species contained in them. The causes regulating this distribution were next considered. It was shown that in all probability each species, even when widely distributed, had a certain isotherm governing it, and that the range of temperature within which it could prosper was not great. The limits of forests in America in north latitude, were stated, for example, at 17.5° Fahr. (isotherm), the isothermal line of 50°, and the isochimonal line of 15°. Moisture was, however, the chief limiting cause of forests, and it appears that at least from 14 to 16 inches of annual rainfall during the growing season are necessary to the prosperity of forests, in defence of which proposition the origin of prairies was discussed. Geological formation had also a limiting influence, the great forests of *Sequoia sempervirens* in California being entirely limited to the metamorphic sandstones of the western slope of the coast range, breaks in the forest occurring where the formation was alternated with limestone tracts.—From *Edinburgh Bot. Society in Gardener's Chronicle*.



DEVELOPMENT 179

EDITED BY THOMAS MENTAN

Vol. Series, Vol. III.

JUNE 1870.

Nov. 18, 1904.

FLOWER TANNIN AND POLYSTYRENE
GROUND

Plants are easily started by cutting any one of the seedling stems from the growing plants and planting them. Any stem may be propagated by layers. They may be planted in a garden bed or other place with a trench or 17" deep, 12" wide and the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at

[illegible]

No trees, Evergreens especially, should be suffered to have grass grow about them for a year or so after planting. It becomes "rank" in the deeply loosened soil, abstracts moisture, and



Camellia japonica

below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at planting or crushing is by far the best remedy. No trees, Evergreens especially, should be suffered to have grass grow about them for a year or so after planting. It becomes "rank" in the deeply loosened soil, abstracts moisture, and



RHODODENDRON CATAWBIENSE

The Gardener's Monthly.

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XII.

JUNE, 1870.

New Series, Vol. III. No. 6.

HINTS FOR JUNE.

FLOWER GARDEN AND PLEASURE GROUND.

Towards the end of June propagation by budding commences. This is very commonly employed with the rose; but ornamental trees and shrubs may be increased in the same way. Closely allied species must be chosen to work together.

Evergreen hedges will require attention as they grow. Where the height desired has been attained, the top and strong growth should be cut back while they are still watery. The side shoots need not be touched till past midsummer. All wise people now employ the conical shape for hedges. In cutting back the top growth at this season, the conical form can still be preserved.

Cut off the flowers of roses as they fade,—the second crop will be much better for the attention. Seeds of all flowering plants should be also taken off; all this assists the duration of the blooming season.

Bulbous roots, when done flowering, and the leaves have faded, should be taken up and dried,—mixed with chaff, or other light loose material, placed in paper bags and stowed away in a dry place till Fall.

Dahlias should not flower early. Keep them growing till Fall, when they will flower finely.

Propagation by layering may be performed any time when strong vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at

the ends before using, when they will last for years.

Flower-beds should be hoed and raked, as soon as the ground dries after a rain. Loose surface soil prevents the under stratum drying out. Peg down bedding-plants where practicable. Split twigs make the best pegs. In dry weather do not water flower-beds often; but do it thoroughly when it is done. See that the water does not run off, but into and through the soil.

Mow lawns often, if you would have them green and velvety. Keep the scythe sharp; usually mowers do not use the grindstone often enough. Common farm scythes are not fit for lawn use; rivetted, and short scythes are the kind to get. If a lawn is mowed often, the grass need not be clean,—the sappy blades soon wither, and make a manure for the roots. The longest should be raked off, or the lawn will have a littery appearance.

Peg down Roses where a heavy mass of flowers is desired. The side shoots push more freely for this treatment.

The Rose bugs are apt to be very annoying at some seasons. The best remedy is to shake them off into a pail of water. The Rose slug is often very injurious to the leaves—completely skeletonizing them. All kinds of rapid remedies have been proposed—whale oil soap, petroleum, &c., but the best thing of all is to set a boy to crush them by finger and thumb. It is astonishing how rapidly they are destroyed by this process. This is true of most of the larger insects. Hand picking or crushing is by far the best remedy.

No trees, Evergreens especially, should be suffered to have grass grow about them for a year or so after planting. It becomes "rank" in the deeply loosened soil, abstracts moisture, and

otherwise seriously interferes with the tree. When the tree gets a fair start, grass does less injury, and when it becomes a tough sod, and the tree by its shade, or say by frequent mowing keeps the grass short, the grass roots do not penetrate deep, and the sod is of benefit, by keeping the surface spongy, and the substratum cool.

Many herbaceous plants, such as Phloxes, Hollyhocks and similar things, that are scarce and valued, may be propagated now very easily, by taking portions of their flower-stems before the flowers open, and inserting them as cuttings in a half shaded, cool, and not dry situation. Layering of many things, shrubs, half-shrubby perennials, etc., should be done before the young wood becomes too hard, if good plants are required the first year. Most plants root more quickly by having a notch cut in the layered shoot. Good, rich soil, put just about the layers is very important. Good soil favors an abundance of roots. One of the greatest mistakes in gardening is the prevalent notion that plants in a poor soil have a greater proportion of roots than in a rich one.

FRUIT GARDEN.

Grapes first coming into bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth, and great productiveness, are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick as a trellis, and generally do better every way. Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines or trellises; for large vineyard culture, though the same principles hold good as far as they go, they will vary in their application.

Grapes in cold vineries will now be of a size fit for thinning. In those cases where the bunches are intended to hang long on the vines, they should be thinned out more severely than those expected to be cut early. A close, compact bunch favors mildew and early decay.

Fine, rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sun-light is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun-heat, where the evaporating process goes on faster than the secretive principle, what should become a rich rosy blush in a fruit, is changed to a sickly yellow; and the rich jet black of a grape becomes a foxy red. Some Grape growers of eminence, in view of the facts, shade their vineries during the coloring process; but others, instead, keep the atmosphere as close and moist as possible. The latter course detracts from the flavor of the fruit. The best plan is that which combines both practices.

Watch newly planted fruit trees. If they have but a few weak leaves only, it shows the roots have been injured; then prune them severely, which will make them grow freely. It should be a main object to make all transplanted trees not merely have leaves, but have new shoots at the earliest possible moment. If they are growing very well, they may be allowed to perfect a few fruits. Overbearing on a newly planted tree is, however, one of the best ways of making it stunted for year.

Strawberries, when grown in hills,—the most laborious but most productive method of growing them,—should have runners cut off as they grow, and the surface soil kept loose by shallow hoeings occasionally. Short litter, half rotten as a mulch, is also beneficial. Lawn mowings are often applied, but with little benefit. Where they are grown in beds, they should not be too thick, as they starve one another, and the crop next year will be poor.

Blackberries are not always ripe when they are black. Leave them on till they part readily from their stalks.

Currants are so easily grown as to require few hints for their management. If they throw up many suckers, take out a portion now, instead of waiting till winter to cut them away. The Currant borer is a great pest, eating out the pith of the young shoots, and causing them to grow poorly, and bear but small fruit next year. Gummy

"flypaper" is, we think, the best thing to catch them.

Gooseberries should have the soil, and even the plants, if it were practicable, shaded a little.

Dry air about them is one great cause of mildew.

In the interior department, Peaches that have been slightly forced will be about maturing, and the atmosphere must be allowed to become dryer by admitting more air and using the syringe less freely. This is necessary, not only to perfect the flavor of the fruit, but to mature the wood properly for next season's fruit. All of this has to be done with caution, as a sudden change from a moist system of culture to a dry one will be certain to injure the tissue and breed disease.

Red spider and other insects closely follow on the heels of a dry atmosphere. They must be watched, and nothing suffered to injure the leaves till by natural maturity the plant has no longer use for them.

VEGETABLE GARDEN.

Peas for a Fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England, where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall Peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for Celery, and are then much more successful with them.

Cabbage and Brocoli may still be set out for Fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are in much request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or Plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June, some Celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil,

or the employment of boards or other artificial methods of blanching.

Beans produce enormous crops in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Cucumbers for pickling may be sown this month, and Endive for fall Salad set out. Parsley for winter use may be sown now, in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellises recommended, will be found to do best on stakes tied up singly. It is best to plant a strong pole, as for Lima Beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will, on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede Turnip or Ruta Baga should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance,—are superior for the Turnip.

Sweet Potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers,—the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

ABOUT PEARS.

BY PARKER EARL, ESQ., SOUTH PASS, ILLS.

Essay Read at the late Meeting of the Central Illinois Horticultural Society, at Mattoon.

Horticulture is very far from being an exact science. There is little that is settled in any department of it. Suppose one should try to find the very best method of pruning and managing grape vines, and thereto should read all that has been written on that question within the last ten years by scientific and practical men (if life were long enough!), what would most likely be his conclusions? So in regard to any other branch of our fruit culture. Our knowledge is lamentably limited and inexact. Our conclusions are curiously divergent.

Pear Culture forms no exception to this painful state of facts; and it must be acknowledged that all the experience of two hemispheres, and all the science of this age have failed to tell us how best to grow and manage a Pear tree. It is therefore an embarrassing thing for any one to attempt what might seem like instruction. The most that any man can do is to give his latest opinions—which a year's experience may materially change. And no man's opinions mainly based on the narrow experience of a particular locality, can be much relied upon under different conditions of soil and climate.

So I stand here to day, not as a teacher, but as a somewhat enthusiastic student of Pear culture, to give you some of my present impressions, which may be worth but little for any place, and that little only for sections whose conditions of climate and soil do not materially vary from those of the hills of Southern Illinois.

The mechanical state of the soil for a Pear orchard is, I think, the most important consideration connected with it. It should be in that happy medium condition which gives free natural underdrainage without being leachy. Such a soil will give those temperate conditions of moisture and warmth in which pear roots delight. Our western soils are generally too heavy for Pears, which require very thorough subsoiling and artificial underdrainage. This is somewhat expensive, but indispensable to success in retentive soils. It is said that tile drains are soon obstructed with roots in an orchard. Probably a foot in depth of small cobble stones covered with

gravel at the bottom of a four foot ditch, will make the best drain for the orchard. As all vegetable substances are derived much more largely from the air and water than from the soil, it seems that the mechanical condition and chemical properties which enable it to absorb and retain the gases supplied by the air and the rain, are more important than mineral constituents.

I would plant a few trees on the best soil I could get or make, wherever I was located, as Pears are a luxury worth taking great trouble to obtain; but I would not plant largely or for profit, except on soils adapted, by natural constitution or artificial preparation, to the healthy growth and longevity of the trees.

Having the right soil, it is important to get good trees to plant. And among trees, as among animals and among men, I believe there are great differences of constitutional vigor. A large majority of the Pear trees I have seen come out of the nursery, are deficient in their native vitality; this may come from a feeble stock, or from a weak bud or graft. A young Pear seedling inherits the qualities of its parent tree, and only the seeds of perfectly grown pears from healthy and vigorous trees should ever be used in propagation. It is my impression that we suffer greatly from the neglect or ignorance of propagators in this respect. It is wholly impossible to make healthy and long-lived trees from puny stocks. Perhaps it is not less important to select buds or grafts from healthy trees, and which have been well developed by full exposure to the sun and air. A vigorous graft on a weak stock may be induced to throw out roots from itself, but a weak graft will never amount to much, whatever the stock.

I will venture the opinion here, that the best way to make a Pear tree, is to sow the seed where the tree is to stand, and put on such tops as you prefer. This cannot be done, however, in all places. But I have no doubt that the oldest, largest and most regularly productive Pear trees in this world have grown from seed where they stand.

As most of us must buy our trees from the nursery, and take their chances as to their "noble blood," I would buy only those trees which show a vigorous habit, and a good balance between

stock and top: and other things being equal would take year trees in preference to older. Nature is violated less in the removal of a young than an old tree.

As to the time of planting, I unhesitatingly say it should be in the Autumn, and the earlier the better, after the leaves have fallen. I also believe in planting closer than is the common practice. The great need of an orchard in our climate is protection against severe winds, and shade to trees, both in summer and winter. All these conditions are more easily secured by close planting than in any other way. In those sections where root-pruning is essential to the health and life of the trees, 400 or 500 trees can be set on an acre, and remain permanently. Or one-half or three-fourths of them may be root-pruned at three or four years of age, and brought into early bearing, while the balance are left to grow to their natural size. In time the root pruned trees, having amply paid for themselves and the others, too, can be removed. If Pears are worth growing as a market crop, in preference to other fruit in a given locality, then I know no other fruit or crop to grow in the orchard, so profitable or convenient as Pears.

Trees, such as I have described, planted in a soil such as I have indicated, should therefore be treated as much on natural and as little on artificial principles as possible. Nature does not cultivate by a constant stirring of the soil, but mulches. Nature plants closely and gives shade in summer, and shelter in winter. Nature prunes sparingly, and not by a systematic shortening or cutting back. Nature grows grass and weeds and small brush to protect her young orchards from all extremes. Can we grow orchards in this way? That is a difficult question to answer with our present amount of careful experiments and observations. There are scattered instances of complete success in growing Pear trees in this way, but I know no one who has attempted to follow nature closely, and on a large scale. Not but that plenty of trees have been planted in a poor way in soil poorly adapted to their growth, and then left to their own fate. There is an abundance of neglect everywhere; but this is not Nature's way. Nature is particular as to soil and climate. She grows her oaks, her pines, her beeches, and her poplars, in locations specially adapted to their several wants. Man has not copied her well in this respect. Nature plants the seed where the tree is to grow. Man has not followed her in this particular. It is my impres-

sion that her success is far the most triumphant, and that her methods are worthy our attention, study, and a much closer imitation.

The artificial system of culture produces everywhere abnormal results. It gives great growth of wood, but great tenderness. It gives premature fruitfulness, and fruits extravagantly large, and "fit for exhibition," but painfully rare. It brings troops of diseases and early death. The agricultural press of the country is full of a murmur of wailing over the results of this system. And yet the few bold men who have dared advise a radical change in our methods of managing trees, get little gratitude and much abuse.

For myself, I am unsettled in opinion as to many of these points. I know this, that I have no knowledge of any Pear orchard that has endured the systematic pruning, manuring and cultivation recommended in the books, for a very long term of years; while I do know of many scattered trees which have yielded their annual abundant harvest for a half century of time, and still stand in green and venerable beauty, monuments of something better than the orthodox system of tree management.

I do not commit myself to any thing beyond this—that the comparative results of Nature's method and man's method are worth our pondering. I do not say that orchards should be seeded to grass, for that is a question of soil and circumstances. Especially, I do not say that they should be left to the protection of weeds; for there is a better way. But it should not be forgotten that Nature abhors the nakedness of the ground, and hastens to clothe every plowed field with her mantle of greenness. I only recommend that we try all these ways, and hold fast to that which gives the most good Pears for the greatest number of years.

Something should be said about "Insects and Diseases," in every well regulated horticultural talk; and, heretic as I am, I will in this respect follow the ritual of our Societies. The two insects which damage us most at present, and which threaten the future of "Pear growing for profit" the most alarmingly, are the Curculio and Codling Moth. The larvæ of the curculio do not often, if ever, mature in the Pear, but in neighborhoods where they abound, they disfigure the young Pears sadly. With orchards of peaches and pears side by side, I have found the latter much the most numerously stung early in the season, while the infant fruits were about the size of peas. The effect of these punctures

are not outgrown by most varieties; the development of the fruit is arrested at the point of injury, or goes on slowly, forming a woody texture, and this scarred knotty fruit is not worth half price in the Fall.

You are all familiar with the work of the Codling Moth in the apple, and I need say nothing concerning this insect, only that it is quite as hard on the Pears as the apples, and so damaging to both, that a dozen years more of neglect of measures for its extermination, promises to leave our pear and apple orchards as barren of eatable fruits as are those of many sections of New England and New Jersey, whose proprietors enjoy their abundant supply of these necessities of the table—when they buy them.

Among diseases affecting Pear trees I think there is none so damaging as leaf blight—by which I do not mean the sudden blackening of the leaves which we so often see on Pear seedlings, but that fall of the leaves in summer which is caused by a slower growing fungus, and sometimes apparently by a premature ripening of the leaves not connected with fungoid disease. This disease affects most varieties in my neighborhood, where the ground is cultivated in the common way. There are a few of our best kinds quite exempt, however, under the most trying circumstances. This fungus attacks only those leaves having a deficient or weakened vitality. Our Pear orchards generally stand in a soil which is systematically kept naked during the entire year, and exposed as much as possible to all the severe changes of temperature. Such a soil becomes intensely hot every bright day in Summer, and radiates heat rapidly at night—a condition of things precisely contrary to all the requirements of physiology and the teaching of Nature. Most of our Pear trees can't stand it. The debilitated leaves which are constantly exposed to the spores of this fungus, become unable to resist it. This is pretty much all theory, of course, but I know that those trees, of varieties most liable to summer defoliation in our neighborhood, which have been kept in a close grass sod, or in clover, have held their leaves quite perfectly through the summer.

This leaf blight lays the foundation for wood blight in many, if not in most, cases. Those trees which shed their leaves in mid-summer will generally put out leaves again in a few weeks; a new wood growth is commenced, many of the perfected fruit buds will blossom, and the freezes of early winter find the tree wholly unripened

and unprepared, and all those new adolescent branches are backward with the frost, and the whole tree must be greatly shocked, and more or less permanently diseased. That such trees should yield to the blighting fungus seems in no wise strange. The tree has passed through the feverish vicissitudes of summer, has been often wounded in root and top, and finally has been exposed to the severities of winter while in summer clothing, and it is quite to be expected that the abased and weakened thing should yield to the attacks of disease.

Now, whatever will keep the leaves on the trees through the season, whether it be high culture, special manuring, root pruning, mulching, or grassing, is better than any other management which is accompanied with leaf blight. Without giving any opinion as to which of these methods is best, I will state two facts: I planted a dozen Flemish Beauty trees nine years ago; have given them moderate annual culture. They are all alive, and in apparent health to-day, but they have been badly defoliated for several summers past, and never matured many fruit buds, and I have never got a barrel of Pears from them all. A neighbor of mine planted a few of the same variety out of the same bundle. He set his trees in ground that he seeded down a year or two after, and which has remained in sod ever since, and he says he has never manured them. His trees are as large as mine, and he has had three or four crops, getting over three bushels to the tree in one season—the pears of fine size. I don't know that the grass was good for them, but I shall try what grass will do for mine. Now, please don't anybody report me as recommending you to plant trees in grass, for I don't make any recommendation. I think it is only the naturally strong and vigorous trees which ever amount to any thing if planted in grass,—or anywhere else.

I don't wish to speak of varieties, as so much depends upon particular localities and management. It seems unfortunate that so large a share of all our trees ripen their fruit in August and September. We need more early kinds, and many more later ones. Nature assigned the Pear season to last as long as that of the apples.

I will only say further, that successful Pear growing depends upon fitness of soil, climate, and varieties, and the largest energy and thoroughness of management. Whatever system of culture is adopted, laziness, slovenliness, and neglect will not win. If I have deprecated the too

general violation of Nature's plans, I have not meant that all could be left to nature, for

"Ours is art that doth
Mend Nature."

ALPINE STRAWBERRIES.

BY L. B., PHILADELPHIA.

Observing your favorable notices of the Alpine Strawberries, in which I fully agree, I send you half a dozen plants of the *White Alpine*, a variety I have grown with great satisfaction to myself, for more than twenty years. In bringing it from the country here, I at first had doubts as to its success in a warmer climate and drier soil; but it has thrived wonderfully, and has every year, for five years past, borne profusely on a clay patch of my garden, irrespective of exposure to sun, or of partial shade.

This Alpine is very hardy; I have only given it a little top dressing, yet it maintains almost a turf of roots over the surface. It needs no thinning out, only that grass and weeds are kept away. The delicate, fragrant, delicious berries, have yielded us dessert in abundance daily, for two or three weeks after the ordinary red berries are gone; picking a bowl full daily from a spot ten feet square.

I have had three or four red Alpines, all of which have failed after a year or two. This one was growing in my father's garden at my earliest remembrance, and it holds its place, cultivated or uncultivated, as tenaciously as the wild ones.

LARGE TREES OF THE WEST.

BY MR. J. A. RICHARDSON, NEAR LOUISVILLE, KY

I have been reading with no little interest, the letters of your California correspondent, as published in your invaluable *Monthly*, and have been particularly interested in his graphic descriptions of the large trees growing on the Pacific slope. I notice also, that some attention has been called by a Texas correspondent to the Sycamores and Tulip trees, which are perhaps the largest specimens of vegetable growth east of the Mississippi River, and which are becoming rapidly extinct, either succumbing to time or the axe of the woodman. In looking over some old books, I find published in the "Navigator," a work issued about the 1814, and printed in Pittsburg, the following remarkable account of an old tree found growing on the Ohio River. The writer in speaking of the timber found along the banks of the river, says: "The Sycamore seems to be the

king of the forest on the banks of the Ohio; their monstrous growth, towering height, and extended branches, really fill the beholder with awe and astonishment. Between Wheeling and Marietta, I measured several from 10 to 16 feet over four feet above ground, and this seems to be but their common size. A gentleman of Marietta told me he knew of one sixty feet in circumference, and that in the hollow of another he had turned himself around with a ten foot pole in his hand, sweeping it at right angles with himself. And there is one of these huge trees in Scioto County, Ohio, on the land of a Mr. Abraham Miller, into whose hollow, thirteen men rode on horseback, June 6th, 1808, the fourteenth did not enter, his horse being skittish and too fearful to advance into so curious an apartment; but there was room enough for two more."

This account has been literally transcribed from the "Navigator," a book of merit and reliability, at least so considered in its day, the author of which seems to have made every effort to collect accurate information on all objects of interest to be found on the banks or in the vicinity of our western rivers. The glory of our grand old western forests is rapidly departing, and as in this practical (yet really, in this light, impracticable) age but few persons are to be found who take any interest in preserving or perpetuating our native growths; the time, we fear, is not far distant when all our timber will be cut down, and the landscape present nothing to break the monotony, save occasional clumps of dwarfish evergreens or rows of formal linden. I can see but one way to prevent this, and that is to instil into the rising generation a love for natural beauty, and to make the study of natural history a more prominent branch of education, more especially the study of botany. An effort is now being made to establish in our State, a botanical garden, for the purpose of preserving our indigenous plants, and it is to be hoped that the public will manifest a sufficient interest in this enterprise to render the scheme successful.

BROMPTON STOCK.

BY J. L. R., SALEM, MASS.

Cuttings of many fine annual and perennial flowering plants are employed in keeping a choice variety. There is no reason why an annual or biennial plant should not survive many years, either on its own roots or from cuttings. The probable reason of failure is that the seed pro-

duction exhausts it, and by depriving it of seed pods by plucking the withered and fading blossoms, and by stimulating it with liquid manures, it would increase in growth. The cotton plant of the Southern States is an annual, yet I have lying before me, some well ripened seeds of the seventh year's produce from a plant raised from seed by a friend of mine, and which is still alive and flourishing, and enable to blossom and boll again next summer.

LETTERS FROM THE PACIFIC COAST.

NO. VI.

"HOME," Nov. 10th, 1869.

Dear Monthly: Although there are many interesting points to visit in and around San Francisco, in my judgment, none can surpass the diversified scenery of the bay, as seen from the deck of one of the commodious steamboats so numerous in these waters. Having accepted a kind invitation to a sail on board the "New World," our party selected a beautiful morning for the trip, and once on board, we soon left the wharf in the distance, and now obtain a fine view of the city front, lined with vessels of every kind, and from many countries,—for we must bear in mind that this port is one of considerable importance to American Commerce. In a short time the "Golden Gate" is distinctly visible,—a narrow channel connecting the bay with the ocean, and flanked on either side by precipitous walls of serpentine rock. It is about one mile in width, and so deep, that vessels of the largest size find no impediment to their entrance. The scenery is really very beautiful, diversified as it is by abrupt peaks and deep valleys; and still another charm is added for the benefit of Naturalists. The vast number of water birds is quite surprising to the Eastern traveller, and the many new and rare species, to him, are objects of great interest and pleasure.

We pass by the forts and encampments of government troops stationed here, when suddenly a heavy fog is seen approaching, and in almost an instant, we are completely enveloped, and obliged to stop so dense is the volume. We feel a puff of wind, and like magic, it is gone, and once more the clear bright rays of the sun are shed over the charming scenery of the surrounding cliffs. In a short time we stop at Vallejo, a manufacturing place of some importance, and where most of our passengers take the cars for San Jose, &c. We arrive in the city again

in time to visit the "Chinese quarters," and so devote the remainder of the day to "shopping," to us a novel proceeding, so far at least as these stores are concerned. The attendants dressed in their blue blouses and *semi-celestial* style, transports one in imagination to the shores of our antipodal brethren. And here let me remark, that never have I met with more uniform courtesy and polite attention, than these despised and ill-treated clerks displayed in every store I entered. Quickly, however, can they detect the presence of an Eastern customer, in search of curiosities for friends at home, and dearly will he pay for them too, if their method of dealing be not fully understood. Goods of every style, from the most elegant and costly silks, to the most common fabric were temptingly offered on the same counters, with the rarest of carvings and simplest of toys. Still, with all their honesty, their aptitude as house servants, their patience under severe discipline, their economy and industrious habits—with all these as the bright side of the picture, there are yet darker shadows that at times seem to envelop and cancel all these praiseworthy characteristics. Bayard Taylor has recorded, that "their touch is pollution," and if the stories that one hears everywhere and from every one be only partially true, then am I ready to believe that their emigration into our midst is a fearful experiment. In a political point of view, I make no comments, but socially and morally I dread the advent of their coming among us. Religious belief of any kind does not exist among them, and this cannot be questioned by the most partial friend to the race; nor do I see any present prospect of inculcating the truths of Christianity in these worse than uncivilized heathens. And yet on the surface, they appear as happy as it is possible for any class of men to be,—always cheerful,—needing only the very slightest recognition to induce a smile to flit across their tawny sunken cheeks, and a "good morning John" to bring out the most gracious pleasant answer.

But I have entirely forgotten my mission, and instead of talking about trees and flowers, have unconsciously wandered off into politics and theology. Well, one cannot travel without seeing some little of the failings of his fellows, as well as the beauties of nature, and I write as I see, without malice and no ulterior purpose to serve.

On one of the most delightful of California afternoons,—pleasant as all of them are at this

season,—I joined a few friends in a visit to the ocean, and other points of interest in the immediate neighborhood. The drive for the most part was over a broad avenue, level and hard as a floor and entirely free from dust, whilst the sea breeze, balmy and refreshing, was just sufficient to counteract the bright rays of the sun shining from a cloudless sky. Soon we near the entrance to the Lone Mountain Cemetery, and passing in through the broad massive gateway, follow the winding drive, now past clumps of Laurel or groups of Acacias, and again by specimens of beautiful exotics that flourish and bloom here with all their native vigor. We gaze with sorrowful feelings at the tall granite shaft that marks the spot where the philanthropist and statesman Broderick rests from his earthly labors, and a passing humble tribute to his memory will escape utterance. Much as we may deprecate the mode that ended his life of usefulness, this visit has recalled to mind his deeds in the cause of humanity, and wakens up within me the remembrance of a bright future, ruthlessly and unpardonably brought to an untimely end. May the recording angel so view his good works, that the mistakes of his eventful and stormy life shall prove but a very slight drawback to his earthly account.

The occurrence of a Chinese funeral, prompts our curiosity to follow the hearse and solitary carriage on their way to the section of the Cemetery devoted to the exclusive use of the celestials; and despite the feelings of sadness that such a cortege usually inspires, this instance had all the semblance of an unbecoming burlesque. No outward signs of sorrow and regret for the departed were evinced by the friends of the deceased, without we except the continual scattering of gilded paper, which was performed during the passage to the grave, and which we were informed was intended to keep away the evil spirits. On arriving at its destination, a shallow hole was excavated for the coffin, and then with a supply of bread and meat, it was covered up; the by-standers meanwhile appearing as happy as if nothing sorrowful had occurred to demand at least a seeming show of regret.

This portion of the grounds is neglected and dirty in appearance,—the many wedge-shaped marks with their hieroglyphics being the only relief to the sandy, dreary aspect of the place. The Spanish quarter looks more neat, but even here a little taste might advantageously be introduced. It is the old portion of the grounds,

and dates back many years before the "gold fever" brought the speculating yankees to these shores, to spend their lives in the hope of speedy riches, but alas, in many cases, to close their career far from the homes of their earlier days, and before such a consumation could be effected. Such were the reflections caused by this visit; and as we left the grounds and again drove rapidly along our excellent road, the current of our thoughts was changed by the distant murmur of the sea.

Arriving at the beach, we endeavored to recall some of the familiar tokens of our eastern shores. To be sure, here was the same expanse of waters, the same broad sandy beach, and the well known peculiar odor, but yet we could not associate our surroundings with similar scenes at home. Out of the ocean arose great heaps of rocks, against which the huge waves tossed and broke with a resistless sheet of foam; and here were gamboling with uncouth antics, herds of seals, their hoarse bellowing being distinctly heard above the roaring of the waters. Occasionally, as if by a preconcerted signal, all would raise their heads, and then in concert, the fearful barking came, wafted to our ears. Lying basking in the sun, appearing like great brown slimy snails, these huge creatures would writhe and twist whenever the waters broke over the rocks, and once a monster dove from the summit and disappeared in the surf below. The Naturalist does not soon tire of such an excellent opportunity of studying the habits of these curious animals, and I fully enjoyed the unusual treat until evening warned us it was time to return to the City.

We noticed but little vegetation growing on the sand banks in the vicinity of the shore, but some succulent plants in bloom were quite attractive, and a very large species of Lupin we had never seen before.

One evening during my stay in the city, I had the pleasure of attending a stated meeting of the California Academy of Natural Sciences, a young but thriving institution, with a flattering prospect before it.

Dr. A. Kellogg, to whose untiring and indefatigable exertions are due the discovery of many new and valuable floral treasures,—exhibited a fine herbarium of novelties, the result of his expeditions during the past season. A dwarf form (?) of *Quercus fulvescens* was shown, and its very marked features alluded to; indeed the distinction between it and the former were so very ap-

parent, that both the Doctor and Prof. Bolander were under the impression that probably it might rank in the future as a distinct species. A remarkably handsome bulbous rooted plant was exhibited—*Brodiaea coccinea*. The strong stem is surmounted by an umbelliferous head of flowers; in color, bright scarlet with green borders, and not very unlike the *Spigelia Marilandica*. I am unable to see any difference between this species and the new genus lately described by Dr. Wood as *Brevoortia Ida-mæi*, which has been figured in the Journal of the Academy of Natural Sciences of Philadelphia. *Eriogonum Whittneyi* is really a splendid new species of the Evening Primrose family, and one which will form a valuable addition to our cultivated garden flowers. The peculiar violet or purplish tint, I believe, is entirely new to this genus, and therefore it will doubtless be eagerly sought after by the lover of novelties. *Silene Bolanderii*, named in honor of the noted Californian botanist, Prof. Bolander, is very striking and handsome, with pure white flowers. Those of my readers who are acquainted with our common "Sleepy Catch-fly" (*Silene antirrhina*) with its viscid secretions along the stems, and insignificant little flowers, would not recognize the above as belonging to the same genus. I was especially pleased with a pure white species of large size, belonging to the *Philadelphus* named *P. occidentalis*, and which I think will prove superior to most of this genus, already in cultivation. *Delphinium nudicaule*,—a misnomer by the way,—is a real gem. The tall stem was gorgeous with numerous brilliant scarlet flowers, and judging from the dried specimens, I know of no other species at all comparable to it for beauty.

But in my opinion, the glory of the whole collection was reserved for the last,—the *Dicentra chrysanthra*. It is so exceedingly distinct from all other species, and so much taller and more conspicuous also, that I could readily imagine its attractive features as described by the Doctor in the course of his remarks.

The museum of this Society is as yet but in its infancy, but perseverance is working wonders towards extending its collection. I noticed excellent specimens of cones, bark, woods, &c., of the various Conifers, which are the wonder of the whole botanical and horticultural world, and from this nucleus I can see in the future, one of the finest cabinets to be found in any country.

Oakland, the Brooklyn of San Francisco, is about five miles distant from the latter place,

and is beautifully laid out in rectangular streets, broad and firm, as well as scrupulously neat and clean. The stranger from the East notices at once the distinct vegetation of the yards and gardens of this rural town, but surmises in vain as to the plants themselves; and well he may, for if like myself, never before have his eyes been greeted with the sight of luxuriant Australian trees growing here along the many avenues, as plentiful as Silver Maples in our streets at home. A species of *Eucalyptus* in particular, is more common than any other for this purpose, and presents indeed a curious appearance; for whilst the young shoots bear very large leaves, on the older wood the foliage is only of medium size, and both are totally unlike in character. This curious tree belongs to a genus remarkable for its gigantic growth in Australia,—the *E. colosseae* being 400 feet high; *E. amygdalina*, 420 feet; and still another species 480 feet in height. Thus we see that our own *Sequoia gigantea* has a superior rival in length, but not in girth. The above measurements are vouched for by several scientific gentlemen, and I see no cause to doubt their statement.

As we rode around the more fashionable portion of the town, and where the gardens gave evidence of high cultivation, many of the plants in each were unexceptionable in point of size and training. Great thorny *Cacti*, 8 and 10 feet high, with enormous bristling spines looked perfectly at home, and were remarkably thrifty in appearance. We measured Agaves 10 feet in height,—two large specimens of which were growing on either side of an entrance gate, and appeared to me as very appropriate, whilst others scattered about the grounds were equally as fine in size. Only think of Zonale or Horse-shoe Geraniums from six to ten feet high and of corresponding size in girth, and you can then appreciate these specimens growing here all the year round in the open air, and brilliant with their great balls of scarlet flowers. I also noticed large plants of *Habrothamnus elegans*, a greenhouse plant at home, yet perfectly acclimated here and forming trees 12 feet in height, the branches gracefully drooping with their weight of purplish bells. In the basins that surrounded the fountains, the *Calla* seemed to be a favorite plant, and their immense size contributed no little to our gratification, particularly as we saw them in full perfection with numerous flowers. Perhaps the most interesting feature in all these gardens, were the great clumps of Pampas Grass,

Gynerium argenteum. We had the curiosity to count the number of flower spikes on one of the finest specimens, and there were thirty, all fully developed, and these too on stems at least 12 feet high. Their immense size and remarkable vigor when contrasted with the same species at home, which annually undergo a removal to glass structures for the winter, or else are severely injured under a load of protective material, is really astonishing. The Conifers having the preference here, were mainly different species of *Cupressus*, of which the *C. macrocarpa* or Monterey Cypress and *C. sempervirens* the common Cypress of Europe were largely planted. *Pinus insignis* or Oregon Pitch Pine is very abundant, and scarcely a dooryard can be found without at least one specimen of this lovely species. But the dwellers here may well boast of their handsome fruit trees,—not only on account of the healthy vigorous shoots and foliage, but to this we may add, in almost every instance, a profusion of richly colored specimens of fruit.

We rode in and through a large pear orchard, several acres in extent, and were surprised at the immense crop just ripening off and falling to the ground. In this collection, there appeared no second-rate specimens, all were alike in size and color; and as for punctures, such as Eastern insects invariably perform on our fruits, I could not find here a blemish of that nature.

As I have several times alluded to the climate of California in these letters, I cannot close them without giving my readers some idea of its chief features, and therefore make the following extract from a periodical published in San Francisco, and which I fully endorse:

"There are but two seasons in the year—in the mountains winter and summer; in the plains and valleys, spring and summer; with the rains of November, Spring and seed time commence with the farmer. Then the grass is green, and the fruits and flowers prepare to bud. As soon as the ground gets fairly wet, by December generally, the farmer begins to plough and plant, and this work he can keep up till April. May and June perfects his crops, and from then till October is harvest time. He is not limited to thirty days for his planting, nor to another thirty for harvesting. The season waits on his leisure, and invites him to an unlimited area of culture. Full half the days of his winter or spring are bright and pleasant, and the rest are showery rather than rainy; all the days of his summer are fair and dry. From May to No-

vember he need not lose a day for himself or laborers. He may cut his hay in June, and not gather it till September or October. No barns are needed for his harvests; the kindly sky and dry air protects them until sent to market. The harvesting, the winnowing, the packing for shipping are all done upon the ground. Nor do his animals require cover; they need no kindlier protection than nature grants; even his laborers sleep sweetly and safely upon the field during the long, dry summer."

In such a climate as this, we need not wonder at the people of "Frisco" using the same manner of clothing all the year round. One rarely meets with furs, unless as an article of adornment, for most likely they will be worn over the thinnest of summer dresses. Overcoats, except in the mornings to keep off the heavy dew, (almost equal to rain) are superfluous. And with this knowledge, I ceased to wonder as I admired great old plants of *Fuchsias* trained over the fronts of the houses, frequently reaching to the second stories; nor at the luxuriant Tea Roses clambering over, and in some instances, completely covering many a rural cottage front. And again large bushes of *Heliotrope*, as we grow *Spiræas* and *Wiegels*.

On the 3rd of November, I again entered the cars bound for home, and after a pleasant trip of exactly one week, (to the hour) arrived there in safety; having traveled nearly 7000 miles in just five weeks, and seen the most interesting features in the sections visited.

As I settle down once more into the daily routine of busy life, the past few weeks seem almost like a myth; and were it not for the tangible proofs in my herbarium and cabinet, I could scarcely believe all that I have passed through were real in fact. And often in the coming years, should my life be spared, each incident of my journey will thus again be brought vividly before me as I turn to these silent souvenirs of my experience in the far western land.

"Not beautiful, but dear;
Your wrecks recall to me the happy past.
Wandlike, your stems can summon to appear
The days that could not last.

I breathe the summer air!
I wander in the woodland paths once more!
Again the copse, the dell, the meadow wear
The loveliness of yore.

The friend who in those years
Shared warmly in my rambles far and wide,
Back, with the same old fondness reappears,
And trudges at my side."

And so dear *Monthly* this record of my jour-

ney is brought to a close, and my connection with your readers ended for the present. That I have perchance interested a few, I sincerely trust; that I have instructed any, I may well doubt; but if a love for the beautiful in nature has thereby been increased, then indeed has my purpose been served, and I shall rest content.

Sincerely, &c.,

JOSIAH HOOPES.

RARE TREES IN CALIFORNIA.

BY J. P. H., ST. JOSE, SANTA CLARA CO., CAL.

I find here a weeping Locust, the sweet 'white flowering yellow,' that is a weeping tree decidedly. I presume an accidental seedling here. It is 25 or 30 feet high, and stands on the same street with the fine new Courthouse here; but on the opposite thereof, and northerly, just after passing the next cross street, it stands on the line where the curb will be one of these days.

I saw a wonderfully weeping Laburnum of similar habit, in Kensington Gardens a few years ago. What is called the White Oak is a great weeper here, and large tree. It is a deciduous, but not a live oak.

The weeping Willows here quite equal those of the Delaware, about Bristol and Burlington. Lombardy Poplars abound here, small yet, but very healthy and thrifty. One might think they had gotten seed for them.

I am struck with the European character of many trees &c. here, some of Oak foliage, the Elder, the Blackberry; the Sycamore, this is a noble tree here, broad, spreading, grand and picturesque too. English Gorse and many Ericas flourish here.

BEAUTIFUL TREES AND SHRUBS.

BY CHRONICLER.

THE GOLDEN-LEAVED ALTHEA.

Hibiscus variegata folia Buisti is commonly called "Golden-leaved Althea," as its foliage is beautifully variegated with green and deep yellow; it is of thrifty growth upon different kinds of soils and in various exposures; its blooms are double, but the greater number should be nipped off when in bud, and the plant by that, will grow more massy. Its variegated leaves are its special beauty, and they grow larger and their variegations are more beautiful when the blooms are taken off in the butt. It is a very striking object when set at a point where two walks meet, and

also upon the lawn near to the dwelling house or walks where it will be easily seen. It can be trained in the form of a tree, with a clear stem three feet, or as a bush branching to the ground. It may be kept a model of perfection at ten feet high, by pruning. It may be set in singles upon small grounds, and in groups in parks; it has a very effective appearance among other small trees. It makes a beautiful variegated hedge, and can be grown as a shrub of six feet high. It originated with Robert Buist, the nurseryman of Philadelphia, several years ago. It is very probable that many of the leading nurserymen throughout the nation will now have got stocks of it. It deserves a place in all arboreal embellishments.

THE STRAWBERRY TREE.

Euonymus Europæus is commonly called "Spindle tree" and "Strawberry tree." It is a very ornamental tree, with a clean stem and branching head; attains a height of eight feet, and in the form of an umbrella; the stems forming the midstick. It blooms in spring, are dark purple or brown, with white stamens, and are very pretty. In autumn, its branches are wholly covered with scarlet berries, which hang on long after the leaves fall. It is from the color and form of the berries, that it is called the "Strawberry tree." It gives a beautiful effect to the lawn during autumn and early winter. It is a general favorite, and is more generally seen in small yards than upon spacious lawns. It may be set in singles upon small private grounds, and in groups in parks. Near to walks or roads and dwelling houses, where it will be well seen, it bears great quantities of seeds yearly; yet it is scarce in nurseries. It is rather of slow growth when young. The reason why it is not universally used in arboreal embellishments, (we think) is, that the common Mississippi "Burning-bush" *Euonymus atropurpurea* is often sold for it, and as that species is so coarse and clumsy in appearance and draws so largely from the soil, it is much disliked. We too often receive it from the nurseries when we order the *Euonymus Europæus*.

THE MAIDEN HAIR TREE.

Salisburia adiantifolia is commonly called "Maiden-hair tree," from the fact that the veins of the leaves run all one way, resembling fine combed hair. It is a native of Japan, and the people in the localities where it grows spontaneously, imagine that the tree possesses supernatural virtues; so Maidens, after they are fifteen

years of age, make under the shade of the branches their toilet in May, when the tree is in bloom, and suppose that it imparts a gloss to the hair, which lasts for a whole year; and that the white bark of the stem gives a whiteness to their skins. So strongly are the minds of the maidens imbued with that belief, that travelers assert that they look fairer when returning from the trees, than they are on going to them. The practice and pleasure is indulged in, and the very supposition of such benefits derived, gives vigor to the health of the maidens and greater animation to their spirits. The tree grows twenty feet high, and rather lean; the branches grow out horizontally and wide apart, and their spread is often greater than the growth of the stem upwards; but by annual shortening in of over extended branches, new shoots are put out behind the cuts; the main stems grow more rapidly upwards, and the tree assumes a massy conical form of great beauty. The form and color of the leaves are peculiarly different from that of all other kinds of trees; their form is nearly a heart, with a very blunt point; their color a dim shade of green, neither light nor dark. The bark upon the stem is almost white, and that of the young branches

a light brown. The tree is not very showy, yet when growing among other trees, no one could pass it without observing its singular appearance; it is a handsome tree of upright growth when annually pruned; a general favorite with all who know it, and is well worthy of a place in all arboreal embellishments; it flourishes upon various kinds of soils and in different exposures; its growth is slow, but is very attracting, even when small; its cost for size is greater than that of rapid growing trees. Coarse grasses and weeds should not be allowed to grow about its roots the first three years after it is transplanted, but a mulch of rotted manure, or tan bark, or sawdust over its roots in fall, will increase its growth and make it more ornamental.

Our wealthy improvers and landscape gardeners, should go more into forming *arboretums* upon pleasure grounds, than merely clothing them promiscuously with any kind of trees, in a reel-rall unreadable manner; then the various species of trees would become more generally known, and their beauties better appreciated. Behold and admire the grandeur of the full grown monarchs of vegetation, the trees.

EDITORIAL.

VITALITY OF SEEDS.

There is much mystery about this subject. We recently read in a New York paper, that on the clay from a deep well, plants of *Sinapis arvensis* the "Yellow Charlock" grew, the seeds of which "must have been there for ages." As this is not an American plant, but one which has followed the foot steps of the white man, of course there must be an error here. We have no doubt it is so with all the cases of so called vitality, not even the supposed well attested cases of forests of trees growing up after a fire in the West, different from that which grew before "from seed which had been for years in the ground."

Farmers say that when they plough up old sod which has been that way for many years, and note the rag weed and white clover which spring up, that these seeds are natural to the soil, or have been there for a long time; but there is no doubt but that this is wrong. The most careful analysis of these soils fails to detect their presence, which it would certainly do if they were

there. Though surely there is not near the vitality in seeds accorded to them, there is really much more than is generally supposed. It is rather how they are kept than any peculiar limit to their age which determines their goodness. We know the time when we supposed it necessary to keep Magnolia seeds moist from the time they were gathered, till they were sown in the spring. Once we found a package which had been thrust under a rafter in a tool shed in spring, which grew as well as any. More recently, Mrs. Col. Wilder found a package of *Magnolia soulangeana* seed in Mr. Wilder's wardrobe, which had been there between two and three years, and which on sowing, produced a plant from every seed. Yet the belief is next to universal, that Magnolia seed is one of the most transitory in its hold on vitality that we have.

These facts show us that we really know little about these matters yet; and they should stimulate practical men to careful experiment as to what are really the laws which govern the preservation and germination of seeds.

THE SEASON AND THE FRUIT CROP.

In this section the fruits are blooming in unusual abundance; and we hear everywhere about us congratulations on the prospect of an abundant fruit year.

It is strange how, year by year, fruit growers have to learn the hard lesson over and over again. As often heretofore, little fruit will follow, and then there will be recollections of some "late frost" that never occurred, or some other explanation equally satisfactory.

A few have learned, once for all, that there is in trees such a thing as vitality, however hard it may be to explain exactly what vitality means. There is such a thing as death, and strong vitality means as far removed from death as possible. Plants are often never so near death as when they blossom freely, and thus abundant blooming often,—very often,—is nothing but a very low stage of life,—a stage so low that there is not vitality enough left to bring the blossoms to perfect fruit.

A young seedling, just commencing to bear, has but few flowers; but these nearly all result in fruit. An old apple tree, hollow with the waste of years, is a mass of flowers, but bears few fruits. It has not vitality enough to perfect them.

It is strange that so many will stick to this frost bitten theory of fruit failures, instead of to the real cause: the loss of vital vigor. They catch as drowning men to straws at every fall of the thermometer, in hopes to prove that cold is a cause of fruit failure. "Now," said a friend to us recently, "will you not admit that late frosts destroy our fruit crops?" when the news came over the wires that the thermometer had fallen down to 8° below freezing at St. Louis, on the 15th of April. There was no mistake about the thermometer; but late advices say there is to be "good fruit crops, for all!" This is very bad for the frost theory. Then we had another trouble in Philadelphia on the 10th of May. Hail stones, as large as *billiard balls*, broke half a million dollars worth of glass, and of course injured trees besides. Then a friend writes:

Philadelphia, May 11th, 1870.

FRIEND MEEHAN: How about the necessity for protection of blossoms and fruit against spring frosts, cold rains, sleet, snow and hail, in the first days of May? Yesterday morning I had \$2000 worth of fruit on my trees, now the hail has scarcely left a taste.

Certainly this is bad; but to say nothing of the fact that this is perhaps the first time such a

thing happened the first week in May, and may be the last. If the trees had been under glass they would have been little better off, as the accounts tell us the greenhouses were totally destroyed, and the plants under them.

It is no use hunting up these imaginary evils, or real ones for that matter which occasionally come. We hold to our opinion, so often expressed, that we have the best soil and climate in the world for successful fruit culture; and that where failure occurs, it is more often than otherwise the consequence of our own ignorance of the laws at our command for preserving the best vitality of our trees.

SOME NEGLECTED FLOWERING TREES.

It is singular, that with so much search for new trees, many beautiful old ones, that have been in our nursery lists for ages, should be so little known. We were passing recently the grounds of H. H. Soule, Esq., of Germantown, where a beautiful tree of *Cerasus padus* was in full blossom, and felt sure that no one who really loves trees, and had a place for a collection, would willingly be without this lovely thing. Yet outside of Germantown, where it is known and well appreciated, we suppose there are not fifty good specimens in the United States.

Another beautiful tree, and yet comparatively little known, is the *Magnolia tripetala* or Umbrella-tree. From every quarter we have inquiries for the Cucumber Magnolia the *Macuinata*, yet the former is in many respects a much more desirable tree; and every nurseryman knows that simply because they are scarce, other kinds like *M. Frazeri*, *M. macrophylla*, and *M. cordata*, are in considerable demand, at high prices, while none of them compare in beauty to the common kind. Most of the usual species have fine leaves or fine flowers. This one has, in addition, highly colored fruit.

Then among the Maples, there is none so pretty, no matter from what part of the world received, as our own *Acer rubrum*, yet it is one of the rarest on ornamental grounds.

Another totally neglected tree is the Ohio Horse Chestnut,—not the Ohio Buckeye,—*Æsculus glabra*. The tree, when it has a good chance, is perfect in outline; but its great charm is in the earliness of its blossoms. In this part of the world, it is often fully in flower the last week in April. These are not showy. The

bunches are as large as the common Asiatic species, but are of a greenish white. But the beauty of the Horse Chestnut family is the garden variety of the common one, known as *Æsculus rubicunda*. This has bunches as large as the regular Horse Chestnut, and of a brilliant rosy red. In obtaining this kind, grafted plants should always be asked for. Great numbers of seedlings are sold in Europe, but as in the case of the purple Beech, the seedlings seldom come as dark as the original ones. Near to the true Horse Chestnut, the *Dwarf Buckeye* suggests itself. This is but a large shrub, but assuredly for beauty one who has but a limited number of varieties should have a *Pavia macrostachya*.

Common as we find it in the woods, how seldom do we find in gardens the Great Dogwood, *Cornus florida*, yet we really have nothing to take the place of it in many points in ornamental gardening. Those who know it only as a native tree, have no idea of its great beauty under culture. We saw one recently which was about forty feet high. It had a stem for about ten feet as straight as it was possible for any tree to have, and which girded four feet in circumference. The head was round, perfectly regular in shape, and was most gloriously in bloom. In autumn, when the leaves turn to a scarlet purple tint, we can imagine nothing more pretty than this must be.

The *Kolreuteria paniculata* is another medium sized tree, which, though long known in Nursery catalogues, is seldom found in grounds. It comes from Japan, has pretty yellow flowers in summer—leaves interesting at all seasons, but particularly so in the fall, when they turn to a mixture of yellow, orange and scarlet. The branching habit is not as pretty as some other trees, but yet when once admitted into collections, is sure to be always a favorite.

We confine ourselves to *flowering trees* in this article; but there are many other classes which are unjustly overlooked.

THE RHODODENDRON.
(See Frontispiece.)

It has often been a source of wonder, that the idea that the most beautiful of all American ornamental plants,—the *Rhododendron*,—could not be grown in its native country, should ever prevail; yet so universal is this belief, that though persistent efforts have been made by enthusiastic nurserymen, like Parsons of Flushing, and Hovey of Boston, to introduce it to public notice, and to show that they can be as well grown

as any other plant, only a few yet realize the fact; and thousands of our readers do not know what a *Rhododendron* is.

In the hope that we could render a service to horticulture, by making these grand things better known, we have selected one for our *frontispiece*. We have from time to time given hints as to their culture; but we will go into the matter more fully here, in order to make the chapter complete.

First, in regard to the successful culture of *Rhododendrons*. This is no longer a problem. The immense success of the plantations of Mrs. Harry Ingersoll, near Philadelphia and Messrs. Hunnewell, Rand, and others, near Boston, besides numerous others in a small way in many other places in the Union, shows that nothing is wanting but the disposition to learn the peculiarities of culture required.

The great misfortune of our people is, that they believe that nature has placed every thing in the best place; and thus, when they see *Rhododendrons* growing in the deep woods, imagine that shade is the first essential requisite in the culture of the *Rhododendron*. That nature has not placed things in the most favorable positions for their development, we showed so conclusively a few years ago, in a paper on the Red Maple, that no one has ventured a single objection against it. It is true she places them where there are the most favorable circumstances for existence; but not for ultimate vigor of growth. In the Red Maple, we find the tree generally in swamps; but yet the largest and best are always in high dry ground; but the seed will not, except in rare instances, germinate in dry ground; and thus the poor thing, as we would say of it, if it were animal life, has to be satisfied to grow in the places where only its seeds will sprout.

The *Rhododendron* is exactly in the same case. The seed is so minute, and so slow in its germinating power, that out in the open places they would dry and burn up with the first warm sun. Only in the deep shaded recesses of the forest, or amidst the continued moist but not wet moss, or bark of logs in open swamps, is it possible for it to exist. It grows there not because it likes to, or because it is best for it to be there, but by the inexorable law of necessity, which gives it no better chance.

All these things are very apparent to those who have observed these plants growing in woods, and in proper ground in the full sun. There is no comparison of the wood ones, with

the health and beauty of those in the full light and air.

But the roots of the Rhododendron are finer than the finest hair, and grow thickly matted together, requiring a great amount of moisture for their subsistence. Hence, if placed in ground that will become hot in summer, or will speedily dry out in drouth, they will not do well there.

It is well known that our American Rhododendrons are the pride and glory of English gardens,—but even there, notwithstanding their humid atmosphere, which does not allow the soil ever to dry as it does here, the English have to prepare the soil to grow these plants to great success. This they do by digging out the natural soil, and filling in with soft spongy turfy peat or bog soil, which they often have to bring many miles for the purpose.

We must also make our soil for them here in most cases; but this is done with no more trouble than is required for any garden crop. One of the best plans is that first described by us in the *Gardener's Monthly*, and which has been found after four years' trial, an admirable plan, proving effectual in the stiffest soil. That is, to dig out 20 inches or two feet, and fill in with a few inches of brush wood, then soil, then brush wood, and so on, until the whole is finished. The mass will be a foot above the level of the ground or more; and in time will find its own level with the surface. On this mass they will grow wonderfully well, and it takes very little trouble to make up. Those who have soil, which naturally neither cakes or dries, need do nothing with them further; but care must be taken not to plant on wet ground. The "Naturalist" may say that the Rhododendron grows in swamps and wet rocks; but pay no heed to this. The truth is, as we said, that though found there, they will thank those who put them in dryer but not dry places.

The seed of the Rhododendron is like fine dust, and requires some care to raise. They have to be sown on the surface of the soil, and the box which contains them placed somewhere in the open air, where the soil will hardly become dry, and where they will be protected from the drip of trees or heavy rains. The growth of plants from seed is very slow for two or three years; but after that their progress is more rapid, and in about six years they will, under favorable circumstances, flower.

Plants from the woods grow very well when cut back freely. New buds will break any

where from the old stems, so that the ugliest looking stump will make a good plant.

Layering is often employed. The young, strong shoots are taken when half or two-thirds mature—about July—and tongued on the upper surface, and bent into rich soil. They will root the same year, but hardly well enough to separate from the mother plant before the second season. It is worthy of note, that the slitting of the layer on the upper surface, instead of the lower, as always recommended by writers, until the *Gardener's Monthly* first taught the contrary, was suggested to the writer of this while layering Rhododendrons. It is almost impossible to follow the regular book plan of layering by cutting underneath, in the case of the Rhododendron, as they will snap off when bent down. When cut on the upper surface, they will not break.

Grafting is practised by those who would perpetuate the finer varieties, distinct by themselves. There are many ways of doing this: each propagator having his own idea of what is the best to be done. But a very good plan is to have a few three year old seedlings, in four or five inch pots, and when the growth is about two-thirds mature, whip-graft a scion of about the same degree of maturity, on this part. It is very essential to have the grafted plants in some very close, warm place for a few weeks, so as to check much of the evaporation from the leaves, otherwise the scions will dry up before the union takes place.

Grafted or layered plants are of course much more expensive than seedlings. They are valued by those who would have the very choicest collections; but the cheaper seedlings are good enough for all ornamental purposes.

The *Rhododendron* takes its name from two Greek words, which signifies "Rose tree;" and next to the Rose itself, there are few flowers more worthy of bearing its name than this. Our own *Rhododendron catawbiense*, which we figure, has particular right to the name, for amongst its flowers are produced almost every shade of color, rivalling the Rose in abundance and beauty.

The Catawba Rhododendron grows dwarfer than the *R. maximum*, and has far more change of color. It abounds in South Carolina and Georgia; while the *R. maximum* is found chiefly in the Northern States. The most usual forms of *R. maximum* have the flowers of purple shades; but along the Alleghanies, down to the Virginia line, is a dwarf form with white flowers, or more shaded with rose, which is particu-

larly beautiful, but which we have not seen any where in cultivation.

Asia like America abounds with Rhododendrons,—very beautiful, and some of them will

probably prove as hardy as the Bhotan Pine, and other plants which come from the same region; but of this we have as yet no positive proof.

SCRAPS AND QUERIES.

WODENETHE, the Residence of H. Winthrop Sargent, Esq.—B., of New Haven, Conn., sends us some interesting facts in reference to this beautiful place. It will be a source of pain to every one who loves the beautiful in Landscape Gardening, to learn that a neighbor of Mr. Sargent's has thought proper to plant out many of the beautiful views for which the place is so celebrated. It is to be hoped that he will yet think better of it. It is always ones interest to aid those about us who beautify and give fame to our locations, and we hope for the sake of Landscape Gardening art in this country, that we have amongst our readers, friends of Mr. Sargent's living near there, who will represent to the neighbor referred to the great injury being done.

In reference to more pleasant matters at Wodenethe, our correspondent further says:

"Having heard a great deal of Wodenethe, Mr. Sargent's place at Fishkill on Hudson, which has been so often described in your valuable magazine, for its rare collection of *Evergreens*, as well as for the cleverness with which distant points are opened, and often live features shut out, I took advantage of a leisure day while in New York lately, to run up and see it.

Unfortunately, Mr. Sargent and his gardener were absent from home, but a gentleman I met near the gate, who seemed familiar with the place, civilly showed me the way, pointing out the very large collection of rare trees and plants which far exceeded any thing I had ever seen, both in variety and size.

The Palms, Aloes, *Araucarias*, etc., are finer I should say, than any in this country. The collection of Palms alone comprizes all the known as well as the rarer sorts. I think Mr. Sargent has eight or nine varieties of *Retinosporas*, all of which seem perfectly hardy, as well as all the finest named *Rhododendrons* and *Azaleas*. There are some fine standard *Hollies* here: Perry's Weeping, 8 feet high; the Golden and Silver Standards,

Nothing could exceed the beauty of the Fruit-houses. The *Apricot* house absolutely covered with fruit, so too with the *Nectarine* house. In *Peaches* the cordon wall seemed very successful, and the peaches, plums, figs and nectarines in pots, were loaded with fruit. The out-door espaliers were beautifully trained and covered with fruit. Great preparations are made here for *Ribbons*, 800 Mrs. Pollock (a boy in the Propagating-house told me), 1000 *Centaurea candidissima*, and large quantities of all the newer *Coleus*, as well as prize tri-colored *Geraniums*: Louise Smith, Princess Alexandra, Lucy Griere, Luna, Crystal Palace Gem, Mrs. Berners, Sophia Cussack, &c."

PRUNING THE GRAPE VINE—B. F., *Namden, O.*, writes: "I am a little at a loss to know how to treat my grapes as regards pruning this summer, there seems to be so much difference of opinion. Some say don't prune at all; others seem to advocate a free use of the knife. Perhaps you have given the proper rule in this matter, but excuse a new subscriber for asking the question, what is best to be done? This is the second year of fruiting, and they seem to be doing moderately well."

[It is very difficult to advise how to prune, without the plants to be pruned are before us. As a general rule, those who advise to prune not at all, are as much in error as those who are always cutting away. There are cases where both rules hold good, each in its way.

In the case of the Grape, more pruning is necessary than perhaps in any other fruit. It is an object to keep the fruiting wood always low down on the vine, and this cannot be done without pruning. So also where the leaves are crowded, some must be thinned to allow proper light to the rest. Again the fruiting branches are better shortened back to a few eyes above the bud, which gives more strength to the bunch. How

you should prune in your case will depend on what your vines are like,—we cannot advise for particular cases; but you see “prune not at all” must not be a motto for you.

MEXICAN EVERBEARING STRAWBERRY IN POTS.—Amongst the chief attractions of our Greenhouse this season, has been a dozen plants of Mexican Everbearing Strawberries, received from Mr. Whiting. We have collected together all the varieties we could find, and grew them side by side. At this writing (May 13th), the Mexicans have been in bearing three weeks, to the admiration of hundreds who have seen them. The next kinds to bear have been some of the paler fruits. The *Old Monthly Red Alpine*, received both from Mr. Fuller and Mr. Knox, have the fruit scarcely formed, much less ripe. We have sent some to Mr. Chas. Downing, who replies: “there is a difference in the leaves and leaf stalks, as you point out.” At the same time it is proper to say, Mr. Downing does not place the same value on the facts that we do.

CLIMATE FOR FRUITS.—Those of our friends who think the failure or otherwise of fruits depends on the climate “about the first week in May,” ought to expect a wonderful crop about Philadelphia this season. We have kept an accurate record of the thermometer, and though we have had what one might term some “cold” rains, the thermometer has never been below 40°. On the other hand, the great heats which often bring things forward too early, have been wanting. Every circumstance has combined to perfection. Our surface stirring friends will surely smother us with fruit this year.

RAMBO APPLE.—J., Trenton, N. J., says: “Formerly the Rambo was one of our most popular fruits, but from some cause or other, they do not do near as well in this vicinity as they once did.”

[Similar reports come to us about many old fruits sometimes. The Bellflower, Baldwin, and R. I. Greening are often in this list. We do not think they fail oftener than any other kinds, but being popular, and extensively planted, when they do fail there are a hundred chances that we hear of their failure, to one of a kind little known.]

BARCLAYANAS—J. R., Pottstown, Pa.—“In a friend's garden last year, I met a very pretty climbing vine, and took down the name given me, which was ‘Barclayana;’ but I find it in no catalogue. Can you tell me if it is known in cultivation?”

[This is the *Maurandia Barclayana*. The popular mind often runs into strange fancies. Often it drops the specific name. In this case it retains it only.]

GOOD WHITE GRAPE—M., Honesdale, Pa.—“Is there any white Grape that will rank in general reliability with Concord? I have tried Montgomery, Maxatawny, and some others, but they do not seem to do.

[There is none equal to Concord; but we think Martha comes the nearest to what you want.]

LATE-FLOWERING APPLES.—On account of the late flowering of Ben Davis, Rawle's Janet, and Northern Spy in Iowa, they escape frosts and yield well.

LILIUM AURATUM.—It is a well-known fact, that the great hopes entertained about the value of the great gold-banded Lily of Japan, have not been realized in this country. What is the cause no one knows; but like the Hyacinth from Holland, importations have to be made every year to keep up the standard. A very few of our cultivators have had “luck;” but with most, the plants get less and less every year. By the following extract from the *Gardener's Chronicle*, it seems they have the same trouble in England:

“Thriving plants of the noble *Lilium auratum* will now generally be forming their young growths preliminary to flowering. It is questionable whether we yet thoroughly understand the requirements of this plant; certain it is, that out of the large quantity annually imported into this country, thousands are lost from some cause or another. And, in fact, instead of increasing the stock annually, in proportion to the increase which takes place with most other introductions, there is a too frequent decrease in the numbers of this plant. One or two points are observable in their culture. They seem to have a decided aversion to being dried off and potted early in the winter, whilst they are dormant, so far as foliage is concerned. They certainly do not like a too plentiful supply of pot room, and appear to

thrive far better in small sized pots than when buried in large balls of soil. Perhaps there are few worse mistakes in the culture of new plants, than the desire to induce a luxuriant growth by potting them too often, and affording too large shifts. Perfect drainage is of the utmost importance in the cultivation of the *Lilium*. Those which are making strong shoots, and growing in pots which are too small for their increasing wants, should therefore be attended to in this respect, the previous remarks being fully taken into consideration. They do not require artificial heat; any place or position where light is abundant, and where they will be free from frosts or cutting winds, will suit admirably.”

TRUFFLES.—A correspondent of the *Southern Farmer*, writing from France, says:

“The cultivation of truffles is making an extensive progress in the south of France. Some people assert that it is the cause of the vine disease. It thrives best in the neighborhood of oaks, however. About 120 pounds is the average yield of truffles per acre, which sell for about 900 francs. A curious circumstance about this tuberaceous plant—so rich in agate as to be ranked equal to meat in nutritive qualities—it grows underground, and must derive its nitrogen from the soil.”

In the United States, Puff-balls are often known as truffles, and taken very young, are nearly as good. The genuine truffle has never been found here.

PENNOCK APPLE.—The editor of *Iowa Homestead* says this variety in Van Buren Co., bears more fruit in proportion to number of trees planted than any other variety.

PROPAGATING EVERGREENS.—F. A., Dubuque, Iowa, writes: “We have some rare specimens of evergreen and deciduous trees, which I am anxious to multiply. I would like to know if I could layer or graft, &c., such varieties as *Pinus Benthiana*, *P. ponderosa*, *P. laricio*, *Picea Cephalonica*, *Abies Nordmanniana*, *Thuja plicata* etc.? I am told that *Pinus* can be grafted on the young wood of the present year's growth; but I think it would be difficult to graft such varieties as *P. ponderosa*, as the young wood is much thicker than any *Pine* I have ever seen. If you could inform me of any work that gives

the “minutiae” of the *modus operandi*, I would feel much obliged.”

[All the *Coniferae* named, root by layers.—the *Abies* and *Piceas* particularly, making quite as good plants as if raised from seeds. The *Pines* do not do quite so well,—they do better by herbaceous grafting. To do this, pot in spring two or three year old plants, of kinds nearest allied to the ones we wish to increase, and when the young growth is very nearly mature, graft with the nearly mature scion. Saddle grafting is best. That is, the stock is cut to a wedge, and the end of the scion like an inverted V. Bound together with bast mat, and kept a little close under glass, they will need no waxing, and will soon unite.

Where the stock is much stronger than the scion, the latter may be cut like a wedge, and inserted on the side, even in the two or three year old wood.—the upper portion being left for some time to draw up the sap.

Some of the minute particulars we have given we know are unnecessary to our correspondent, but we make them, hoping to render these answers to correspondents of use to others, as well as the one who suggests them.

Pinus Austriaca is a good stock for *P. ponderosa*.

Pines may be propagated by budding, as the writer of this has discovered, and the fact is now probably mentioned for the first time. This is the way it is done: as soon as the growth of the *Pine* is nearly accomplished, while the shoot is still soft, nip out its terminal bud. The next year a fascicle of the so called leaves or needles, taken out with a piece of bark, as in the usual way of budding, and inserted into the nearly mature young shoot of any congenial stock, will unite very freely. The next season, if headed down to the bud, it will push from there. The objection to this is, that including preparation, it takes three years to get a plant.

Hoopes' “Book of Evergreens” is the best.]

NAME OF PLANT.—D. W. M., Kewance, Ills.—“Will you please name the enclosed flower for me? It is grown from a bulb, found in some moss brought from the forest in Michigan. The flower I send you has been in bloom for the past three weeks, and looks as well as when first opened. Is it worthy of cultivation?”

[This is a very rare orchideous plant.—*Arctostaphylos bulbosa*,—one of our handsomest natives of that class. It is very difficult to retain in cultivation. Formerly it was found tolerably abund-

ant in New Jersey; but "collections for Europe" have nearly eradicated it from accessible localities.]

MR. HOOPES' CORRESPONDENCE.—Our decision to be a party in the Californian trip last year was overbalanced. We are now glad that we did not go, for we should not then have had the admirable correspondence our readers have so much enjoyed. Mr. Hoopes takes a position in the front ranks of Horticultural writers. Few since death stopped the pen of the lamented Downing, have possessed the power of carrying along the sympathy and attention of the reader as Mr. Hoopes does. We know that hundreds of our readers will learn with deep regret that the present letter closes the Californian correspondence.

HEARTH AND HOME.—It is to the credit of Horticultural and Agricultural journals that they seldom resort to personal abuse of gentlemen connected with each other, as we often see in what is called secular papers. Singularly enough when it does occur, it is usually in those with very great pretensions to "high tone" or "good family" recommendations. We had to notice a brilliant specimen of vulgarity concerning the editor of this magazine in the Boston *Journal of Horticulture* recently, and we now have another in the shape of the following, from *Hearth and Home*:

"AN AUTHORITY ON STRAWBERRIES.—For a long time our horticulturists and others have wished that an authority on strawberries might appear. There are so many new varieties introduced, and old ones going out of cultivation, that a living, walking, or traveling Cyclopaedia-Fragaria was a thing much to be desired. We are happy to inform the great American republic that the man has come. Of course we refer to the editor of the *Gardener's Monthly*, who, in a late number, states that he is enabled to detect a difference between the Mexican Everbearing Strawberry and the old Monthly Red Alpine, and he says, 'that any boy of ordinary intelligence can pick out one from the other.' But further on he states that 'differences can be detected, but it requires sharp eyes to pick them out.' Just so, and we regret, for the sake of science, that ours are so dim that we are unable to see those differences. But the closing remarks of our new authority are decidedly handsome. Hear him: 'There is, therefore, no longer any doubt about the entire distinctness of the Mexican as a variety from all others.' Well, we can assure our contemporary that there are a few old botanists and florists not a thousand miles from this city that were noted for their scientific attainments before he was born, and are so yet, who cannot find the distinct characteristics named. Perhaps it is because they do not possess sharp eyes; but there is no question about the clearness of their brains.

Mr. B. Hathaway, of Little Prairie Ronde, Mich., who

is a strawberry-grower of many years' experience, offered five hundred dollars to any one who would pick out the Mexican from the old Monthly Alpine on his grounds. If they are so very distinct, perhaps the editor of the *Gardener's Monthly*, will send one of his sharp eyed boys after that prize."

All our readers know that when we said "that differences can be detected, but it requires sharp eyes to see them," we were not speaking about the old *Monthly Red Alpine*, which is the one in question. But it seems to suit the morals of *Hearth and Home* to deal in this class of deception on its readers.

We have been accustomed to speak favorably of *Hearth and Home*; but if it is to drop the manners of a "family and fireside" journal, and descend to low bar room wrangles and betting arguments in the discussion of scientific facts, we must part company.

We have ever found the bluff game of money to back an argument, the last resort of ignorance and folly. If the *Hearth and Home* is fond of this style of proving scientific facts, no doubt it can find plenty of such evidence of the correctness of its position in the slums of New York, without going to Michigan to find them.

A BOX OF VIOLETS.—From Mr. Geo. Such, South Amboy, was one of the pleasantest treats of the Spring. Only 18 inches square, yet it contained hundreds of opened flowers.

Oberon says,

"I know a bank where the wild thyme blows,
Where oxlips, and the nodding violet grows."

We have heard of times when there were great runs on banks. If such violets as these passed current in Oberon's days, we fancy there was a pretty good run on this bank. We should much like if Mr. Such would add to [the obligation a chapter on Violet culture, which he evidently "sees through."

NATIVITY OF THE POTATO.—"Renni," Greenville, Tenn., asks: "The common Potato is called the Irish Potato. Why? I suppose it is not a native of Ireland. Where is it originally from?"

[The Potato is a native of South America, and was introduced into England about the end of the 16th century, but exactly when or by whom is not known. Probably by Bauhin the botanist. It was found to thrive well in the soil and climate of Ireland, and immense quantities being exported from that country, they became known in the trade as "Irish Potatoes," as distinguish-

ed from those raised in England, which would be English Potatoes. The term "Irish," as applied to this whole class of Potatoes, is an Americanism, unknown in Europe, although Cobbett, perhaps, did something to start the idea, by calling the Potato "Ireland's lazy root." He adopted this term from the practice of the Irish, who grew them in wide trenches, which they called *lazy beds*.]

SEXES OF PLANTS.—R. B., Philadelphia, says: "I have been much interested as a young student of Botany, in the classification of Linnæus, founded on the sexes of plants. In conversing with a friend, I expressed myself that he was the discoverer of the sexes of plants, on which his system was founded. As this was questioned, I take the liberty of inquiring if I am not right?"

[Not quite right. The Romans had certainly a knowledge of the separate sexes, as they used to fertilize the female dates with the male flowers from other plants. There is not much said about it, however, in their works; but then there were not many to write, and of those books which were written few have come down to our times. They knew more in their day than we usually give them credit for. Of the moderns, Cesalpinus, an Italian botanist, before Linnæus, knew certainly all about the sexes of plants.]

BOTANICAL EXPLORATIONS IN NEVADA.—Dr. I. A. Lapham, of Milwaukee is now engaged in Zoological and Botanical exploration of Nevada. Several boxes of specimens have already been shipped to his home.

DISEASE IN APPLE TREES.—J. B. B., Russellville, Ky, writes: "I have an orchard of 72 Apple trees, 6 rows, 12 trees in a row; rows running north and south. The 3 rows on the east, are on ground 5 feet lower than the other 3 rows on the west. Now over one-half of the last 3 rows have died; the trees are 9 or 10 years' old, and for the past three years have been in grass. The 3 rows on the east side are all healthy and fine. The leaves and small fruits are beginning to fall, and in one month the tree will be dead. I examined the roots, and from the top of the ground down it is entirely dead, whereas the body and limbs are apparently alive. I could not find a borer. Now, Mr. Editor, I will be

obliged if you can suggest some remedy. I have lost 8 or 10 trees this year; several last and the year before, and I see indications of others dying. The ground is rich, and I keep the grass under them shaved off."

[We have known some trees, especially Sugar Maples and White Pines, die in this manner, from the effects of a parasitic fungus on the roots. Also, we have known dwarf apple stocks, undoubtedly healthy, die by having fungus from a dead dwarf Apple tree placed on their roots. We suspect this is the cause here; though we have never known a similar case on such large trees. If this is the case, thread-like *Mycelium* will be found on the roots,—as we believe in all cases of death from fungus, it is by the agency of these thread-like films. If the trees were smaller, we should take up, wash with water, and plant in new and fresh soil; but with so large trees, it is hard to experiment with any prospect of saving them. Possibly a heavy watering of lime-water and sulphur (the sulphur being put on the lime before the water is added) might kill the fungus, if it should be a fungus, and the attack has not already done its worst.

FRUIT PROSPECTS IN NEW JERSEY.—A Salem letter says: "We have the promise of a great pear season. My Vicars, Beurre d'Amanlis and Duchesse trees look like 'snowball' bushes."

GARDENING AT DUBUQUE, IOWA.—A correspondent from New Melleroy Abbey, says: "Around our new monastery, two wings of which are now nearly finished, we are beginning to plant. It is of solid stone, all through, in the mediæval gothic style, with buttresses, walls, and stone mullions, windows and enamel glass. I think the surroundings would be in better keeping in the Picturesque, rather than in the Beautiful style."

PHILADELPHIA LAWN MOWERS.—Last year we noticed that Graham, Emlen & Passmore had made important and valuable improvements in Lawn Mowing machines. We are glad to know that our notice drew general attention to them, and that they are becoming as familiar as "household words." A correspondent in Dutchess Co., New York, writes that he has had to abandon all the Lawn Mowers in general use for hand work, and asks if there is really one any

good. We believe he will be entirely satisfied with one of these.

NAMES OF PLANTS.—A. B., Reading, Pa.—*Amelanchier botryapium*, the Juneberry or Indian Cherry, a tree worthy of general culture.

K., Elizabeth, Pa.—*Andromeda mariana*.

NOBLEMEN AT WORK.—Few of us have any idea of the fondness of the English aristocracy for real hard work in their gardens and grounds. Earl Vernon, formerly President of the Royal Agricultural Society, of England, would work all day, hoe in hand, with his laborers, and as hard as any of them. The writer of this paragraph has seen his nephew for hours, axe in hand, thinning out his own plantations; and once saw him with the Duke of Wellington, both together with a cross-cut saw cutting down a large Buttonwood.

These reminiscences are called up by an American correspondent who recently visited Mr. Gladstone, the English Premier, at his home at Hawarden, and who found him hacking away at a Beech fourteen feet in circumference. He takes great pride in his ability to do hard work, and believes, the correspondent says, that physical exercise induces a good appetite, and that this again reacts on mental vigor.

THE IVES GRAPE.—This is preferred to the Concord for marketing in many places, as it so nearly resembles that kind in general quality, but has a firmer skin, which enables it to travel better.

SWEET AND SOUR APPLE.—A Pemas, Mich. correspondent of *Rural New-Yorker*, sends to that journal apples which are part sour and part sweet, in the same fruit. Experts pronounce the sweet part the Sweet Bough, and the sour Rhode Island Greening. How they were originated is not stated. We may remark, that when the question of producing them by dividing the buds was agitated last year, we urged readers to try for themselves. We did our share to settle this vexed question, by dividing the buds of a dozen Rhode Island Greening, and a dozen Red Astrachan, setting the halves of each kind together as one. Though we employed a very sharp knife for the operation, and the "fit" was so complete that no one could tell but that it was

one scion, except by the color of the barks the experiment does not promise to succeed. But we will report again some day.

A LARGE LEMON.—We have before us a lemon of exceptional size. It measures 5½ inches long, 10½ circumference and was grown on one of the trees in the greenhouse of J. Vaughan Merriek, of Philadelphia. George Graham, gardener. Its weight is 14 ounces, av. If any one can beat this we should like to know.

LARGE ASPARAGUS.—An "Old Subscriber," Philadelphia, wishes "to learn something about the very large Asparagus that has been brought to our markets lately. Is it a native, or did it originate in Europe?"

[This large Asparagus is obtained from common roots planted three feet apart every way, and in soil kept up to the highest condition of richness. The Asparagus is a native of the sea-coast of Europe,—and is also partially naturalized along the eastern shores of the United States. It does not grow very stout when wild. It has been in cultivation over 2000 years.]

SURFACE-STIRRING PEAR TREES.—It is pleasant to us who have struggled so long against the old barbarism of stirring the soil to cultivate fruit trees, to see it gradually giving way. Paschall Morris thus helps along the good work, in a recent number of his *Practical Farmer*:

"Some years ago a friend of ours purchased a farm in Chester county, where there were some fine and thrifty pear trees, but never pears. These latter were what he believed in, and he brought them, by simply mulching the ground, as far as the branches extended, with stones. We saw a space of five to six feet around the trunks paved with stone, and there were pears, and regular crops, every season."

RAWLE'S JANET APPLE.—The similarity between the names of Janet and Janetling is leading into confusion very different apples.

Rawle's Janet was, no doubt, adopted from that female name; while Janetling is a corruption of "June eating," so called because that apple was often early enough to eat in June. The confusion is unfortunate, as in the case of the Janetling there is little besides earliness to recommend it;

while Rawle's Janet is one of our showiest and best winter fruits.

Care should be taken to strictly preserve the orthography of names, as they often furnish the best clue to their origin. This is well illustrated by a flower common in gardens known as the *Devil's Bit*. We were asked recently why it was called Devil's Bit? The original orthography was *Devil's Bite*. The Saxons had their legends as well as other nations. They supposed the root of this plant to possess very great virtues for

healing the sick. This of course was exceedingly disagreeable to the arch enemy of mankind, who is always anxious to come by his own at the earliest possible moment, and give them no time for repentance, so he bit off the roots of that plant, as any one who dig up a root of *Scabiosa succisa* can even to this day see; but, fortunately, not enough to prevent poor humanity from making good use of the part he left. If the *e* had not been left off the *bit*, the legend would be less likely to get lost.

BOOKS, CATALOGUES, & C.

SKELETON TOURS, through England, Scotland, Ireland, Wales, Denmark, Sweden, Russia, Poland, and Spain. By Henry Winthrop Sargent. Published by Appleton & Co., Broadway, New York.

Time is of much more importance to a traveller in present than in the past days. It is a priceless boon to know beforehand where and what to see. We have often wished for just such a little pocket book, as Mr. Sargent here gives us. It shows us not only what to see, but how to go, and the cost of getting there. This he does by making a brief note of each day's doings, thus: "Aug 4th. Drive again or walk to Oakley Park, to see the Druid Oaks, said to be 3000 years old. From here to Downton Hall, Sir Charles Boughton's, beautiful lawn and flower gardens,—and fine extensive views. Bill at Ludlow, three days and carriage, £5 10s.

Mr. Sargent's little book though valuable to every traveller, is particularly so to those of horticultural tastes, as nothing interesting in this field escapes his eye.

THE STRAWBERRY AND ITS CULTURE, by J. M. Merrick Jr. Boston: Published by J. E. Tilton & Co.

This is chiefly a descriptive catalogue of all the varieties that have appeared during the last hundred years in England and America. Hundreds of them have been "born to blush unseen" to few but their raisers, and it must have been a great labor of love on the part of the author to dignify them with a place in a book. However it will interest students who wish to get to the very bottom of all things. In addition to the descriptive part, there are many excellent hints for Strawberry culture.

THE PIG, by Joseph Harris. Published by Orange Judd & Co., New York.

Mr. Harris, well known of old in the *Genesee Farmer*, and now of the *American Agriculturist*, has the rare faculty in modern bookmaking of writing well; and of using as good common sense as good language. It is always a pleasure to read anything from his pen. In this book Mr. Harris is himself. He goes profoundly into the fattened hog,—and advocates strongly the desirableness of more attention to choice breeds.

SEVENTY FINE POPULAR FLOWERS, by E. S. Rand Jr. Published by J. E. Tilton & Co.

This book is issued in the usual beautiful style for which the Messrs. Tiltons are deservedly famous. Mr. Rand has chosen some of our most popular flowers, of which to briefly sketch the history and culture, and has made a very pleasant and readable book about them. In a notice of a previous work of Mr. Rand, we regretted his use of the vulgar error "Tube Rose" to designate the well known plant referred to. In the present work, it is still used in the illustration,—although correctly *tuberosa* in the text. With so much useful information it is to be regretted that more care was not taken both with the facts and the proof reading,—some of the latter being quite serious, especially one, which makes the *Coleus* a native of Iowa. We fear however, our Boston friends think us captious in our criticisms, so we content ourselves by saying that to the general public, this little book will be very welcome.

TALKS TO MY PATIENTS.—Hints on getting well and keeping well.
By Mrs. R. B. Gleason, M. D. N. Y.: Wood & Holbrook.

This work is intended for women exclusively. We handed it to a lady connected with our establishment, every way competent to judge of its merits, who pronounces it excellent. We are sure it can have no higher praise.

VALEDICTORY ADDRESS, by Ann Preston, M. D., Prof. of Physiology in the Women's Medical College of Pa.

Women have been taught for ages to be "earnest in good works." The Philadelphia ladies believe that the higher the intelligence the

better the work. They had many difficulties to overcome, therefore their success in the pursuit of knowledge has been wonderful and gratifying to all lovers of human progress.

THE ENTOMOLOGIST, of St. Louis, Mo.

Has added "*and Botanist*" to its title, and placed the Editorial control of the last department in the hands of Dr. Geo. Vasey of Illinois. This is an excellent idea, and we are sure will be popular and profitable to the publisher.

NEW AND RARE FRUITS.

GOLDEN THORNLESS RASPBERRY.—Golden Raspberries of the Blackcap species abound wild all over the Union, and it is strange that no attention has been given to selecting some of the best for cultivation. Usually, as first shown by Dr. Stayman in the *Gardener's Monthly*, pale varieties are not as hardy or productive as dark ones, but generally they are much superior in flavor, a character which always makes them welcome. Recently Mr. Purdy has turned his appreciative eyes in this direction. His *Golden Thornless* promises to be popular.

We notice that there is a tendency in some quarters to pronounce this the same as a western variety called *Minnesota*. This is a great mistake. The kinds are quite distinct.

It is to be regretted that there should be so much haste to throw kinds together, as has been recently exhibited in many cases. It is so easy to mix things, and so hard to separate. Moreover in the present stage of the 'science,' or rather the medley of pomological knowledge, where little but *memory* is relied on to fix distinctions, it is safest to distrust one's own judgment for a time, than to believe every one else wrong.

NEW APPLES.—Almost every agricultural paper has now its drawings and descriptions of new apples. Though anxious to make the *Monthly* a record of Horticultural progress, it is nearly impossible to keep up.

In the *Rural New Yorker*, the following have recently been named: Quaker Beauty, Oct. and Nov.; Hesper's Blush, Oct., Nov.; Beacher's

Sweet, Oct., Nov.; Stewart's Sweet, Oct., Nov.; Pride of Minneapolis, Pride of the Prairie, Honey Sweet, Coral, Peffer's No. 1, Winter Gem, Busby's Early, August; Parry's White, August, Sept; Orange Pippin, Sept; Clime's Codlin; Newville, Dec. to Feb.; Prolific Blush, Aug. Sept.; Cons, July, Aug; Potter's Early, July, Aug.

Some of these are crabs. They are all good kinds and worthy of attention.

THE BLACK DAMASCUS GRAPE.—At p 243 mention is made of the Black Damascus as one of the finest of all Black Grapes. Having grown this variety extensively at one time, I can quite endorse this opinion, for no Black Grape I have ever tasted equals it for rich vinous flavor, and, when grown well, for its enormously large round berries. It is a very distinct variety, and is easily known by its large succulent leaves and sturdy bunches. The flowers before opening are like little berries, but it is a bad setting variety unless the capsules of the flowers are rubbed off at the flowering time to set the pollen free. It likewise labors under the same disadvantage as the Kempsey Alicante and other bad setting Grapes, of having a little viscid juice on the top of the stigma, which requires disturbing at the setting period. This I always did by drawing the hand when dry over the bunches at the warmest time of the day, and especially if the sun shone. By attending to this process I had always a fair crop in a good sized vinery planted entirely with this variety, and during its season of ripening, October and November, no other

Grapes were called for till it was done. Being a thinskinned Grape, it will not keep late. The perfect berries have only one stone, and the smaller ones are seedless, but they are nearly as large as many Black Grapes, with seeds in. I doubt if grafting would have any effect upon this variety in making it less shy in fruiting or setting. I have never tried it upon any stock but the Black Hamburgh, and the experiment was not favorable, for I found it did better on its own roots. The original Black Damascus Vine at Workshop Manor was found to have pushed its roots into an old heap of coal ashes, and bore good crops every year.—WM. TILLERY, *Gardener's Chronicle*.

that early blooming and early fruiting go along together.'

THE PAOLI APPLE.—This apple has been already noticed in the *Gardener's Monthly*. Attention is again drawn to it by a note from Mr. Roberts to the *Rural New Yorker*, who says: at Paoli, Chester county, Pa., "the original tree was found growing in a clearing; the tree, apparently eight or ten years old, of rather a spreading habit, a thrifty grower, and when found, had on it nearly one bushel of apples of good size, or above medium. In appearance, it resembles Summer Hagloe, but is less streaked with red."

NICANOR STRAWBERRY.—A Boston letter says: "The only Strawberry I had freely in bloom on the 1st of May, was the Nicanor.—which shows it to be a very early sort, supposing

STRAWBERRY MONARCH OF THE WEST, is a western seedling, said to be "an extraordinary" one. Twelve to fifteen berries make a quart, and some have been raised sixteen to the pound.

NEW AND RARE PLANTS.

DOUBLE LILAC.—Amongst the new plants we have seen this year likely to prove desirable is the Double Lilac. It is about the same color as the common purple—perhaps a shade paler. In common with most double flowered plants the growth is not so vigorous as the single flowered kinds. The bush is more compact, which gives it a distinct habit. We have no doubt it will become popular.

IRIS VIOLACEA.—This is a beautiful new species of a genus which comprises many a gem of the herbaceous border. It is a perennial, and perfectly hardy in our climate, being a native of the Caucasus. The leaves are lanceolate-ensiform, cuspidate; the scape two feet high and leafy; the spathes each two-flowered; and the flowers themselves of a rich deep violet purple, having a cylindrical tube, the outer segments of the perianth deflexed, 2 inches long, broadly ovate, spotted with yellow towards the base; the inner segments ovate-lanceolate acute, while the petaloid stigmas, which are linguiform, bifid, and

incised at the apex, are also violet-colored.—*BULL'S New Plants*.

LILIUM LONGIFLORUM ALBO-MARGINATUM.—This interesting new Lily has been recently imported from Japan. The leaves have a distinct and even narrow border of white, which adds considerably to the interest of the plant, while the habit of growth is similar to that of *L. longiflorum*, and the flowers also are pure white, as in that species. It forms a very pretty and desirable novelty amongst Japan Lilies.—*BULL'S New Plants*.

PARMENTIERA CEREIFERA.—This is the celebrated "Candle Tree," discovered in the valley of the River Chagres, Isthmus of Panama, by Dr. Seemann. It has opposite trifoliate leaves, and large white blossoms, which, in its native habitat, are given throughout the year, but are produced in the the greatest abundance during the rainy season. As in most of the *Crescentiaceae*, the flowers grow out of the old wood; the

fruit is fleshy, and the seeds very small, not larger than lentils.—W. BULL.

COBÆA PENDULIFLORA.—This is of much more elegant habit and neater growth than the common Cobæa, and will form a useful addition to stove climbers.

The flowers are produced from drooping peduncles 8 to 10 inches in length; calyx-tube dilated; segments green, $1\frac{1}{2}$ inches long; corolla green, tubular at the base for about an inch, then divided into lobes, which are remarkable for their length, being from three to four inches long, pendulous and wavy, and about $\frac{1}{4}$ inch broad. The filaments of the stamens are about 3 inches long, of a dark red purple color, thus forming a peculiar and distinct contrast to the green lobes. Native of Caraccas.

GODWINIA GIGAS.—This is the largest Ariod, both in leaf and flower, of which we have as yet any precise knowledge. It was discovered in January, 1869, by Dr. B. Seeman near to Javali mine, in the Chontales Mountains of Nicaragua, where it grows amongst brushwood in broken ground near rivulets.

The plant grows with great rapidity—several inches during a single night. It produces only a solitary leaf and after that has died off, the flower spathe makes its appearance, both leaf and spathe being of gigantic dimensions. The petiole (of the largest specimens measured in Nicaragua) is 10 feet long, covered with minute spiny projections, and with a metallic beautifully mottled surface, brimstone yellow, barred and striped with purple, giving it the appearance of a snake standing erect. The blade of the leaf, which is green on both sides, is 3 ft. 8 in. long, so that the whole leaf is 13 ft 8 in. long. The blade is divided into three primary sections, which are again repeatedly subdivided, the extreme divisions being ovate acuminate. The peduncle is 4 feet long and 4 inches in circumference, mottled, rough, with minute spiny projections like the petiole, and furnished towards the base with several large bracts. The flower spathe is the greatest curiosity, measuring as it does 1 ft. 11 in. in length, and 1 ft. 8 in. in width. It is of thick leathery texture, outside of a dark bluish brown, and inside of a dark brownish red, with the exception of the base and those parts surrounding the spadix, which are whitish yellow. The spadix is only 9 inches long and 9 lines across, and bears hermaphrodite flowers.

The original specimen, sent home by Dr. Seemann, attained the first year of its cultivation to within a few inches of the dimensions noted of it in Nicaragua.—BULL'S *New Plants*.

PSYCHOTRIA CYANOCOCCA.—If one were to search the vegetable kingdom through, it would be difficult to find any other plant which displays, either in its flowers, fruit, or seeds, such a beautiful ultramarine color as is exhibited by the berries of this new species from Chontales, Nicaragua. In leaf there is scarcely anything to distinguish it from hundreds of congeners. The color and size of the flowers is disappointing to the lovers of gay tints and large blossoms, but both are all the more calculated to prepare us, as it were, for a surprise. As soon as the fruit begins to assume shape and substance, a tint is displayed which can be but imperfectly rendered by the Greek term *cyaneus*. In its native woods, the plant grows as underwood, and is loaded throughout the winter with large blue berries, as many as from 30 to 35 growing on one bunch. Its introducer was Dr. Seeman, who also vouches for the plant being absolutely new to science.—WM. BULL.

PSYCHOTRIA CHONTALENSIS.—"I now beg to forward to you a second species of Psychotria," wrote Dr. Seeman to Mr. Bull from Central America, "and in doing so I must in the first instance endeavor to disabuse your mind from prejudice which, no doubt, you share in common with many other hunters after ornamental plants, viz., that Psychotrias are unworthy of your attention, and do not possess those qualities to which you are specially bound to look. This species is a companion picture of *P. cyanococca*, but it is altogether more robust and hairy a kind, and is allied to the Peruvian *P. pilosa*, though differing from it by having smaller leaves, and axillary, not terminal, panicles. The berries are not of such an intensely deep blue as those of *P. cyanococca*, but their color is still perfectly lovely, and they are larger, usually 40 to 50 growing on a bunch. If one could but dig up one of the numerous bushy specimens, crowded with fruit, by which I am here surrounded, and send it to one of the Horticultural flower shows, I have no doubt what the Floral Committee would be forced to do. Remember also that these two species fruit in the depth of winter, when color is highly acceptable, and you will have no reason to grudge them a place in your collection."—WM. BULL.

ANTIGONON LEPTOPUS.—"The first time I saw this plant," writes Dr. Seemann (vide *Gardener's Chronicle*, June 20th, 1868), "was in the autumn of 1848, when making a botanical excursion from Mazatlan, on the West Coast of Mexico; and in a letter addressed to the late Sir W. J. Hooker (published in *Hooker's Journal and Kew Miscellany*, page 149), I wrote, full of enthusiasm, 'The finest flower we saw during the journey was your *Antigonon leptopus*. It covered nearly every bush, and the deep rose colored blossoms were so abundant, that scarcely a leaf could be seen.' In that part of Mexico where I first met with the plant, the native term it 'Rosa de Mayito;' and in Nicaragua, where I found it in 1837 and 1868, 'Rosa de Montana,' or Mountain Rose. Of course, when looking at the shape of the flowers, there is not the faintest resemblance to a Rose; but at a distance, a comparison with the Queen of Flowers would readily suggest itself, the outer three sepals being of a beautiful rose color, the centre of a much deeper tint. The flowers, arranged in racemes and panicles, appear in the greatest profusion, and the bushes look as if a large rose colored

sheet had been spread over them—a sight never to be forgotten. The flowers, as those of most Polygonaceæ last for some weeks. I have traced the plant on the West Coast of America from Nicaragua to Northern Mexico, and often looked for for ripe seed, but I never could find any, and my belief is that it does not produce seed readily. During my last visit to Nicaragua, however, I was fortunate enough to procure, after many a fruitless search, a few seeds—not more than half a dozen; but of these, it is satisfactory to add, Mr. BULL succeeded in raising several strong plants, which may possibly flower this autumn, and the species will then become deservedly popular. I am well acquainted with the contents of our gardens and the vegetation of most parts of the world, but I have no hesitation in giving it as my deliberate opinion, that there is no more graceful and beautiful climber than *Antigonon leptopus*. It is hardly possible to exaggerate its beauty, and were I to add more in its praise, I might lay myself open to the suspicion that I wished to write up an introduction which is well able to stand on its own merits."—BULL'S *New Plants*.

INTELLIGENCE.

BEN DAVIS APPLE.—In the year 1799, Wm. Davis and J. D. Hill came from Virginia to Kentucky, and settled in that part of Logan, now known as Butler County. They located near Capt. Ben Davis, the brother of Wm. Davis, and the brother-in-law of Hill. A few years afterwards, Hill went back to Virginia on business, and when he returned to Kentucky brought some apple grafts with him. Hill and Wm. Davis raised fruit from these grafts. Capt. Ben Davis, finding the apple a desirable one, grafted the same for himself, and also raised a young nursery of it. These trees were sold through the country, and for want of knowing any other name, the people called it the Ben Davis apple, using the word Ben to distinguish him from his brother William. Capt. Davis himself, and his family, always called it the Virginia Pippin, because the original grafts were brought from Virginia.

It is, therefore, legitimate and proper to call it Ben Davis, as the name by which it was then known is not now, and, perhaps, never will be known. So much for the history of the Ben Davis.—*Journal of Agriculture*.

PEAR ORCHARD AT KEOKUK, IOWA.—The Iowa Homestead has an interesting sketch of the orchard of John Given Esq. His soil is clay loam. There are 175 trees. The land was trenched 2 feet deep (no manure) at a cost of \$100. The lot 50x100, and trees 10 ft. apart planted—standards. They grow from 8 to 9 ft. a year—no sign of any disease. No water lodges about the soil. It is very dry. They were planted six years ago. Practices the clean shallow culture, and prunes judiciously, so as to have every tree a specimen. He grows the following varieties: Howell one of the most promising; Belle Lucrative, Bartlett, Beurre Diel, Dearborn's Seedling, bore half a bushel to a tree, considers it the best early pear, specimens we saw on the trees measured $2\frac{1}{2}$ inches in diameter. White Doyenne, Duchess, Tyson, Gaslin; this last is very productive. The Clapp's Favorite he thinks well of; Hunkle, Beurre Stekman, this the sixth year has a full crop. Buffum, handsome grower, some made 5 to 6 feet this season; Brandywine, very fine tree; Beurre d'Anjou, Seckel, Louise Bonne, Ott's Seedling, Lodge, Beurre Giffard. This last, Ma. Given

says, is next best to Dearborn's Seedling, for early bearing. Beurre de Amanlis, set out three years ago, grew over seven feet this season, is now 12 feet high. Alexandrina, Doyenne de Alencon, Lawrence, prodigious grower; De Tongres, Urbaniste, Rostiezer, fruit rich and sweet, equal to Seckel; Doyenne du Comice, Merriam, Winter Nelis, Excelsior, Gerardin, Admirable, Shelden, Swan's Orange, Dana's Hovey, Easter Beurre, Golden Beurre of Bilboa, Kingsesing, St. Michael's Archange, Beurre Superfin, Glout Moreceau, Josephine de Malines, Jaminette, Madaline, St. Ghislain, Vezouziere, Manning's Elizabeth, Beurre Hardy, Winter Nelis, Belle Epine Dumas, Andrews, Gen. Totten, Bloodgood, Beurre Langelier, Flemish Beauty, Nouveau Poiteau, Beurre Clairgeau, Vicar of Winkfield, Uvedale's St. Germaine, Baronne de Mello, Beurre Bosc, Dix, Doyenne d'Ete, Kirtland.

APPLES IN KENTUCKY.—The *Ruralist*, of which the venerable Lawrence Young is Editor, says of last year's apple crop, it is less remunerative than that of either pears or peaches. Three leading sorts as we reckoned a few years ago—Pryor's Red, Striped Winter Pearmain and Yellow Bellflower—bear no crop. The early summer sorts—White Juncating, Red Astrachan and Early Harvest—bore fair crops. Rawle's Janet is in full bearing. So is Baldwin, upon trees not in fruit last year. Maiden's Blush, Fall Queen, Roxbury Russet, Porter, Fall Pippin and a few others have done well. But of the five or six sorts, first including Newtown Pippin and Pryor's Red, only the Fall Queen has visibly improved the past season. Quite barren for several years, it now first yields a fair crop, which, though rough and scarred by disease and insects, will yet eat pretty well.

CHERRIES IN THE WEST.—We mentioned some time ago the curious fact noticed by Mr. Douglass, of Waukegan, not only that grass culture was best for the Cherry, but that it was the *only way* in which they could—speaking generally—be made to live at all. We have seen many curious confirmations of this, but nothing stronger than the following from the Mission (Mich.) Fruit Growers Club; about fruits in general, Mr. Sizer said: "I endorse the remarks made by Messrs. Parmelee and Avery. As to *pruning*, the lighter the better, where limbs don't interfere. Setting too deep I know by experience, is bad. I have dug the earth away and they do

better. As to cracks, when I planted my orchard and cultivated *late*, the trees cracked; when I did not, was not the case. I ventured to say, that the stimulated growth, continued late is the cause. Orchards should be cultivated but not too much. Even Peaches not tilled too much, seem to be more vigorous and bear quite as well. As to pears I have known tilling to kill the orchards. So with plums. Mulching is in most cases sufficient. Apples, however require more cultivation. The Baldwin is my best grower, except the Golden Russet. Protection from heavy north and west winds is, in my opinion, necessary, but the forest trees should not be too near, as I show in my own orchard."

DAHLIA IMPERIALIS.—Proves to be a finer plant than the most eulogistic descriptions of it led us to expect, while it was as yet unknown here in a flowering state. Indeed, all descriptions hitherto have fallen far short of its merits, and, lest we should fail to do it justice, we refrain from attempting a description, however brief. The figure published in the *Gartenflora* represents the flowers as two and a half inches in diameter, and of a pure white color; but the flowers produced in Mr. Salter's nursery measured seven inches in diameter, and were of a faint lilac color streaked with blood-red at the base. We have so many times referred to the plant as one of the finest in respect of port and leafage for the subtropical garden, and as having flowered freely under the skillful treatment to which it has been subjected at the Versailles Nursery, that there is little left for us to do but direct attention to its merits again at the best time of the year for extensive propagation. We trust the trade will take this noble plant in hand, and multiply it sufficiently to make it cheap.—*The Gardener's Magazine*.

HOW TO GROW MUSHROOMS.—If English spawn is used, each piece is about the size of a small hen's egg; but, if French, a flake of about the same diameter as the opening into which it is inserted is the proper quantity. The manure removed in making the hole is then restored and well pressed down. Mushroom spawn should always be in a dry condition *for conveyance*, to insure its preservation; but so used, it often happens that it takes root too slowly, allowing the bed in the meantime to become cool. To obviate this inconvenience, the spawn should be deposited four or five days before planting in some damp situation (in a cellar, for example), which will make it soft, and facilitate the vegetation; but care must be taken that it does not become mouldy. The openings are made equidistant, nine inches apart, on two lines, the first commencing three inches from the base, and the second five to six inches above the first, the holes on the first line alternating with those on

the second in a triangular pattern. This being done, the bed is again littered over, and at the end of a few days it must be examined to ascertain if the spawn has taken root, which will be known by the increase of white filament in the dibbling hole spreading itself in the bed. If not the spawn, which has become black, is carefully withdrawn; and, in holes skilfully made by the side of the old ones, a new supply is immediately introduced; unless the bed may have become overheated, in which case it is allowed to repose until it has returned to a suitable temperature, which should not decline below 75°, nor rise above 80°.—MESSRS. SUTTON AND SONS, in *Gardener's Magazine*.

THE MEALY BUG.—With the new year let those who are troubled with the presence of that detestable pest, the *Mealy-bug*, in any of their stoves commence such an onslaught upon them as will thoroughly rout them out. This is the proper season to undertake the operation, the plants being partially at rest, and there is perhaps rather more time for such work than there will be by-and-by. To say that it is not possible to destroy this pest where it has thoroughly established itself, seems feasible to those who know its endurance and reproductive powers. I nevertheless assert that, with a thorough determination to be free of it, it is to be overcome even in the worst of structures, and under very adverse circumstances. I believe there is nothing better towards attaining this end than crushing each one between the finger and the thumb at least, so I have experienced in more than one successful undertaking of this kind. Each infested plant should first have every vestige of the insect or its mealy covering crushed out with the forefinger and thumb, and afterwards should have a good dressing with some mixture, such as Gishurst compound or Fowler's insecticide. The roof of the house and every other part should be properly cleansed, even to whitewashing with fresh slacked lime, or otherwise painting, as varied surfaces require. Then the surface soil of all borders should be taken far away, and fresh soil substituted in its place. But the operator must not rest here, for now the real fight for mastership will commence. From out of the minutest interstices the pest will ever anon creep forth; let these intruders be crushed one by one. The males are more slender than the females and hence a quicker eye is necessary to detect

them. By destroying them before they are permitted to form fresh nests, good and sure work will be done; and it is only in so far as this part of the business is unflinchingly carried out that a successful end is to be looked for. I may here mention that the Mealy-bug has been known to form a lodgment upon Vines. If such an instance is now to be met with, the same remarks will apply but a stronger solution should be used—say, equal parts of either of the above preparations, soft-soap, sulphur, and tobacco liquor; and if the bark upon the rods has not been stripped too closely, a tablespoonful or so of spirits of turpentine or paraffin may be added.—*Gardener's Chronicle*.

BEEES IN BORNEO AND TIMOR.—Having recently perused Mr. Spencer St. John's very interesting work on Borneo, published in 1862, under the title of "Life in the Forests of the Far East," I have made notes of several passages relating to the apian aborigines of that magnificent tropical Island:

Speaking of the agricultural pursuits of the "Sea Dayaks," Mr. St. John says—"They obtain beeswax from the nests built on the tapang trees, and climb the loftiest heights in search of it, upon small sticks which they drive as they advance up the noble stem that rises above 100 feet free of branches, and whose girth varies from 15 to 25 feet. Once these pegs are driven in, their outer ends are connected by a stout rattan, which, with the tree, forms a kind of ladder. It requires cool and deliberate courage to take a bee hive at so great an elevation, where in case of being attacked by the bees, the almost naked man would fall and be dashed to atoms. They depend upon the flambeaux they carry up with them, as, when the man disturbs the hive, the sparks falling from it cause, it is said, the bees to fly down in chase of them, instead of attacking their real enemy, who then takes the hive and lowers it down by a rattan string. The bees escape unhurt. This plan does not appear to be as safe as that pursued by the Pakatan Dayaks, who kindle a large fire under the trees, and, throwing green branches upon it, raise so stifling a smoke that the bees rush forth, and the man ascending takes their nest in safety. Both these operations are generally conducted at night, although the second might be, I imagine, practised in safety during the day."—*Cott. Gardener*.

CENTAUREA RAGUSINA.—The method which I practice, is to take cuttings as early as possible in July, and firmly insert each in a thumb pot, with soil consisting of loam, leaf mould, and sand, in equal proportions. Care should be taken to leave an ample depth from the soil to the rim of the pot, to contain water to moisten the whole of the soil when necessary. The cuttings are then placed in a greenhouse, where they enjoy an equable temperature of about 70°, often much hotter in bright days, and are partly shaded by the foliage of some pot Vines, but no regular shading is used, neither is air withheld. The two chief points to observe are care in watering, and a temperature not averaging much below 70°. It is of the greatest importance that the cuttings should be firmly fixed in the soil; a short stick of the same size as the stem of the cutting, tied to it before it is put in, is of great assistance in keeping it steady. By using these sticks, more of the heavy leaves can be retained on the cutting.

When roots are formed, the young plants are at once removed into the open air, where they remain till housed with the general bedding stock. A second lot of cuttings is taken off in August with equal success. I am aware it may be urged that July is somewhat early to make cuttings, but in ordinary seasons, if the plants are vigorous as they ought to be at the time of planting, good side shoots will be formed by the second or third week in the month. The present backward season will, I fear, form an exception, and consequently it would undoubtedly be an excellent plan to retain a few plants in a spare border specially for propagating from; or, better still, if the plant is really hardy, to establish a few permanent plants entirely for a supply of cuttings. A large plant growing here has passed through two winters unscathed, and apparently with increased vigor; it now measures nearly a yard in diameter.

The hardiness of this plant adds to its value. I this year turned the whole of my stock into the open air on the 31st of March, placing a double line of the plants close to the front wall of some pits, but with no other shelter, and as there was a considerable number of them, the space under glass gained by their removal was very valuable. The free growth and elegant proportions of *Centaurea candidissima*, together with its peculiarly distinct soft grey color, have justly given it a leading position amongst ornamental-foliaged plants in the flower garden, and

if used with judgment, no plant tends more to enliven a design; but its bold appearance also causes it to be a somewhat dangerous plant to use; for a flower garden containing a preponderance of light colors is quite certain to appear so insipid as to afford very little pleasure to the beholders.—**EDWARD LUCKHURST**, *Egerton House Gardens, Kent.*—*London Journal of Horticulture.*

LEUCOJUM VERNUM, the spring snowflake is a rather aristocratic form of the double snowdrop, very similar in appearance at first sight; but botanists declare that the two genera are very distinct, and therefore it was found necessary to give them different names; hence the *Leucojum* (from *leucos* white, and *ion* a violet, referring to the color and fragrance of the flowers,) received the name of the snowflake, which, while it denotes its affinity to the snowdrop, is not inapplicable to the meaning of *Leucojum*. It does not flower so soon by almost a month, as the snowdrop; but its blossoms, which are usually one on each footstalk, sometimes two, are much larger, and delightfully fragrant. It is found wild in shady places and moist woods, in many parts of Germany and Italy. It is as hardy as the snowdrop, but not near so common. The proper situation for it is a north or east border, and a suitable soil is a mixture of loam and bog earth.—*Gardener's Weekly.*

MOULDS AND MILDEWS.—These minute vegetable forms are often productive of serious detriment to a variety of industrial operations. Take for example, the old fashioned method of bleaching, by exposing the fabrics for several days upon the bleaching ground, so that the dew, by a slow process of oxidation, may remove any colored organic particles remaining in the stuff. This moisture encourages the development of the sporules deposited by the air, which produce those discolored patches known by the French country folk as *heudrissures*, and which it is almost impossible to remove without injury to the texture of the material. So in the manufacture of gelatine of vermicelli and macaroni, and of all kinds of Italian pastes, the presence of these minute organisms will often produce a sort of putrid fermentation, destroying the entire product. The mould which forms in empty casks is another example, and the disagreeable flavor sometimes found in wines, which we then describe as "corked," is probably due to the for-

mation of a minute vegetation in the pores of the cork. There is reason to believe that all the changes in fermented liquors, which we are accustomed to regard as spontaneous, are due to the development of rudimentary vegetable forms. Some valuable observations, which have not until lately received the attention they deserve, were made by Chevalier Appert, in his *Livre de tous les Menages* (Paris, 4th Edition, 1831), upon this subject.—*Gardener's Magazine.*

REPORT ON THE DISTRIBUTION OF FOREST IN NORTH WEST AMERICA, WITH NOTES ON THE NON-CONIFEROUS TREES AND SHRUBS.—By Robert Brown, F. R. G. R. South of the sub-arctic belt of trees, which is almost identical in species over the whole American continent, North West America was divided into two great regions, the dividing line being the Cascade range of mountains and its continuations, the Sierra Nevada running longitudinally through out the whole country, and forming together a very distinct arboreal province. The country to the west of the Cascades was wet, and everywhere (except in a few places, chiefly by the banks of the river) covered with dense, almost trackless forest, chiefly composed of gigantic Conifers, and differing from corresponding forests on the Atlantic in possessing few deciduous trees, and a dense undergrowth of shrubbery. This region, Mr. Brown considered, might be naturally divided into the Kalosh district, distinguished by forests of *Thuja borealis*, and the absence of several trees common in the district south of it. The next district commenced with the forests of *Abies Douglasii*, in 54° north latitude, and continued to about 42°. From the prevalence of the chief tree in it, it was called the Douglasian district. It was everywhere a dense forest of Conifers, and a few deciduous trees. *Abies Mertensiana*, *Picea amabilis*, *Quercus Garryana*, *Acer macrophyllum*, *Populus monilifera*, *Alnus oregana*, and *Juniperus Henryana*, were the most distinguishing trees. The Umpqua district was characterized by the possession of forests of *Cupressus fragrans*, only found here, *Libocedrus decurrens*, &c., and was more open to the east, where there was a break in the Cascade range, here joined by Siskiyou Mountains to the Sierras. The Sequoian district was distinguished by the forests of *Sequoia sempervirens* only found here. California, west of the Sierras, was, however, divisible into two

districts, the district of the coast range and the country between it and the Pacific, and the country between the coast range and the Sierra Nevada. The trees most characteristic of the first district were *Pinus insignis*, *P. muricata*, *P. tuberculata*, *P. Coulteri*, *Abies bracteata*, *Torreya Californica*, *Cupressus Macnabiana*, *C. macrocarpa*, *Arbutus Menziesii*, &c.; and of the second—*Oreodaphne Californica*, *Platanus racemosa*, *Aesculus Californica*, *Arctostaphylos glauca*, *Pinus Sabiniana*, *P. Lambertiana*, *P. monophylla* (Fremontiana), *P. Balfouriana*, *Cupressus Lawsoniana*, and *Wellingtonia* (*Sequoia*) *gigantea*, Lindl. Among its most characteristic shrubs are the service-berry (*Amelanchier canadensis*), *Rhamnus Purshiana*, *Prunus subcordata*, and the Poison Oak (*Rhus diversiloba*—the type of a great number of so-called species). The country east of the Cascades, and between it and the Rocky Mountains, was bare, and thinly scattered with trees: dry in summer, and cold in winter. It was divided into a northerly district, a middle or Kootanie district, and a southerly or Shoshonee district—chiefly characterised by *Pinus ponderosa*, *Pinus contorta*, *Juniperus occidentalis*, &c. The Colorado desert region partook more of the Mexican province than that north of it, and was marked by the prevalence of *Algarobia glandulosa*, *Stromboscarpa pubescens*, cottonwoods (*Populus* sp.), *Fremontia*, a *Yucca*, some Oaks, and the giant Cactus (*Cereus giganteus*, Eng.), the *Pithecia*, of the native Californians, and on the fruit of which the Indians subsisted to some extent. Another region—the Montane—was marked by certain trees, chiefly Coniferæ, which were found only at certain elevations over the whole arboreal province of N. W. America, though the regions at the base of the mountains were entirely distinct in their vegetation. These were common to nearly all the mountain ranges, no matter where situated in the province, the hypsometrical range of the species varying slightly with the latitude. *Pinus flexilis*, *P. cembroides*, *Abies Pattoniana* (*Abies Williamsoni*, Newberry, non Bridges, which was Kellogg's *Abies Bridgesii*—*Abies Albertiana*), *Larix Lyelli*, *L. occidentalis*, &c., were cited as characteristic of this region.—*Transactions of Linnæan Society.*

MR. PATERSON'S MODE OF RAISING NEW SORTS OF POTATOES.—The late Mr. Paterson of Dundee, one of the most successful producers of

new varieties of potatoes in modern times, left on record an account of his procedure, which has been reproduced in the *Gardener's Magazine*. Respecting the preparation and sowing of the seed, he says:

When the apples were ripe I gathered and stored them in boxes until the plums in a manner became decayed, then bruised them among water, and filtered through a fine sieve, so as to allow the seed to be separated from the pulp. I again had the seed put through a finer sieve, so as to leave it as clean as possible. I then had it dried on a cloth in a dry atmosphere, and kept it safely over the winter.

I then had it sown in March, 1854, among properly prepared mould, in small boxes placed in a greenhouse. After the seed briarded, so that I could distinguish the most healthy plants, I picked them out in the month of May and replanted them in an early border in a garden manured with vegetable mould. I paid every attention until lifting time, when I found most of the tubers not larger than peas. I then placed them in small flower pots, and clamped them up, keeping the produce of each plant separate, in a

well sheltered garden, so as to secure them from frost.

In March, 1855, I again replanted the tubers contained in each pot in separate rows in a garden a little more exposed than where I had them the former year, and at lifting time, I found them of various sizes, the largest not bigger (except the early red kidney) than good seed size. But I could now more easily distinguish the different varieties, and I placed the produce of each kind in separate boxes, and had them clamped up again in the ordinary way for the winter.

In March, 1856, I planted the contents of each box (cutting the large tubers in two) in a well sheltered field on the farm of Dronly, near Dundee, still keeping each variety separate. At lifting time, two of the varieties had almost attained marketable size; but still sound data cannot be ascertained until after years of continuous cultivation.

My aim was to discover new varieties of plants possessing constitutions vigorous enough to enable them to combat successfully both atmospheric and insectivorous adversaries.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

Philadelphia was visited early in May by one of the most destructive hail storms ever known. If there had been any gardeners in Africa in the olden times, such hail would surely have ranked with the Locusts and so forth among the celebrated Egyptian plagues.

The florists of Philadelphia lost many thousands of dollars. Mr. Mackenzie alone, losing it is estimated ten thousand. Buist, Dick, Dreer, Pollock, Graham, King and all the well known names lost heavily. The great force of this storm can be appreciated by the fact that the great conservatory of the Dundas estate, which was glazed with thick glass from Europe, and supposed to be hail proof, was totally destroyed. Residents in the vicinity of the Dun-

das mansion who closed their venetian shutters to guard the glass in the windows, had these in many instances broken to pieces by the stones. Usually, the glass is all the loss of a hail storm, but in this instance, the plants also were *ground to pieces*. The stones were mostly as large as *hen's eggs*—not Bantam's, but large Brahmappootras.

In consequence, most of the exhibitors who usually sustain the monthly exhibitions of the Pennsylvania Horticultural Society so handsomely, were not present. Mr. McDonald, gardener to M. Baird, Esq., Mr. H. C. Gibson's gardener and Mr. Huster gardener to J. B. Heyl, had very good plants; and the vegetables were rather above the usual variety and excellence. There were some Trentham Black Grapes very good for so early in the season, and Mr. Herstine's forced strawberries, extra fine.

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HINTS FOR JULY.

FLOWER GARDEN AND PLEASURE GROUND.

Friends, writing from the West, often say, "we wish you would find something like your box edging of the East, which is not hardy here;" but hardiness does not depend on temperature, as we have often shown. If the proper conditions are complied with, we believe the Box will withstand any temperature, even to that of the North pole. These conditions are rich soil, and shade from the sun in winter. The tree varieties of box are beautiful things for garden adornment. The Red Spider is a great enemy to them. We are not sure that the insect which goes by this name on our out-door plants is the same as our in-door one; but it is so near and so alike in its destructive powers, that it makes no difference in a practical way. A Box tree thoroughly infested is hard to clear of them. The best way is to cut off all green leaves early in the spring, then wash the plant with oily water in which sulphur has been mixed, and let it throw out a new set of leaves. Even then the plant will have to be watched for a year or two, and any straggling colonies destroyed before they increase much. These hints will apply to all evergreens which are liable to Red Spider. Its presence is easily known by the small yellow specks on the green leaves.

This season, in this section of the country, is the one for the appearance of the May beetle or American Chaferbug, *Philophaga quercina*. Its name would indicate a peculiar fondness for the *Quercus* or Oak family; but unfortunately for us, it takes the leaves off all our beautiful trees alike. They feed only at night, and every morn-

ing naked spires of leafless branches are the visible effects of their last night's debauch. Next year they will be as small worms in the ground, and do little injury,—the following season they devour the roots of young trees, destroying thousands for us; the next they seem to rest, and do us little injury,—the fourth, the present, they visit us in this unpleasant beetle form. Well, it teaches us to know our friends and value them. We never allow a crow, a mole or a toad to be molested on our grounds; and birds of every kind are welcome. We can protect and guard our fruits and flowers better from these open foes than from the hundreds of thousands of insidious insect enemies.

The time is coming when transplanted trees of the past fall and spring will suffer more than during any other part of the season. If they show a vigorous growth of young wood, no danger need be apprehended, as it indicates that the roots are active, and can supply all the moisture the foliage calls for; but if no growth has been made, no roots have been formed, and the leaves are living for the most part on the sap in the wood and bark, and hot drying weather will tell with injurious effect on such trees. This is generally first shown by the peeling off of the bark on the south-western side of the tree,—the most drying aspect; and where such exhaustion appears probable, much relief may be afforded by cutting back some of the branches, syringing with water occasionally, shading the trees where practicable, or wrapping the trunk in hay bands or shading the south-west with boughs or boards.

It is a matter of surprise, that hardy climbing vines are not more used in lawn decoration than

they are. Their general use is confined to walls and screens. They are pretty objects trained as pyramids through our grounds. Rejected evergreens make good trellises. Larch trees afford the very best. A trellis maker could not turn out a better one. Of course the lower branches should be left a little longer than those above them.

Amongst the best vines, are *Clematis azurea*, *C. viticella*, *C. flammula*, *C. Virginiana*, *C. vitalba*, *Akebia quinata*, *Bignonia capreolata*, *Caprifolium brachypoda*, *C. Halliana*, *C. flexuosum*, *C. flavum*, *C. sempervirens* (scarlet coral), *C. Magneville*, *Celastrus scandens*, *Periploca græca*, *Wistaria frutescens*, and *W. magnifica*.

Wistaria sinensis is too strong for any thing but a strong trellis. For growing over trees it is admirable. Over some old Hemlock trees, in Germantown, it roams from fifty to sixty feet high, making a magnificent spectacle when in blossom.

Some beautiful objects for lawn decoration can be made of *Wistarias*, by training them as standards. A young plant is selected and trained to a stake six feet high. When the plant reaches this it is headed off. The second year the stake may be taken away, and the young plant will support itself. It will never make running branches after this, as it takes all its nutritive powers to overcome gravitation and sustain itself erect. A beautiful umbrella-like head is formed, and its hundreds of drooping flowers in spring thus shown off to beautiful advantage. Another point of interest to a nurseryman in this is, that with this check to growth the reproductive powers are called into play, and the plants then usually produce seed abundantly. There is hope for numerous improved varieties as soon as these facts become generally known. Our first year's crop of plants bloomed this year. We had retained only a couple of dozen of plants; but though there was no very distinct variations amongst them, no two of them were exactly alike, showing that the principle of variation is active there.

We need scarcely repeat our frequent instructions how to trim hedges—if they have not been attended to, do it now. Make the base about four feet wide, cutting with a sharp scythe up to an angle at the top, five feet or so from the ground, so that there are but two faces.

The next two months will be the trying time with such plants as *Auriculas*, *Cinerarias*, *Calceolarias*, and others which cannot endure the

dry atmosphere of our summers. When the shaded houses we have recommended in previous numbers shall become more common, they will be grown as easily as weeds. We keep our *Auriculas* all the year round under glass, with the best results. They would do as well under any light enclosure that would prevent the too rapid escape of moisture. A sunk pit would be an admirable contrivance for them, besides making a good place to store away half hardy plants through the winter.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even the ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing it time to soak gradually away, and when the surface has dried a little, draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes the easier it dries; and the result is, the more water you give the more is wanted.

Whenever the bark of any plants separates easily from the wood, and plants have ripened their wood enough to form prominent eyes in the axils of the new growth of leaves,—budding may commence, and may continue with different things till September. It is an easy way to change trees we already possess into others more desirable: choosing closely allied species for the operation. Thus a common ash might be transformed in one season to a fine specimen of a Weeping Ash, or the new Oregon Maple be budded into large trees of Sycamore. Sometimes advantage may be taken of working mere bushes into the heads of large growing trees,—transforming shrubs into nobles of the forest. Many trailing and meagre-growing willows, cherries, maples, etc., are rendered very vigorous growers by being budded on strong growing kinds. Budding also affords room for tasteful combinations. Trees with different shades of foliage, hues of leaves, habits of growth, or color of flowers, may be worked on one common stock,—fancies of which kinds add much to the interest of a place when judiciously executed.

Many things do not take well by budding; in which case inarching may be employed. This is done by bringing together two half-ripened shoots of different varieties, just shaving the bark at an opposite point in each, making the two faces of

the shaved parts meet, and then tying the two branches together at the junction, lapping the tying material (bast bark is the best,) so that the whole cut part is encircled by it. Most parties who intend to inarch, keep some of the kinds they wish to use as scions in pots, so as to bring them at the proper season in contact with the stock. Shelyings and other contrivances are resorted to to support such pots, in and amongst the branches, when the operation is to be performed at a height from the ground. A plan, however, which obviates all this trouble, and is generally successful, is to hang bottles of water near the points to be inarched, and the scion is placed in this, from which it derives enough water to carry on its vital functions, until the union with the stock takes place.

FRUIT GARDEN.

The thinning of fruit,—watching of insects, especially the borers in Dwarf Pears, Quince, Apple and Peach,—and summer-pruning are the main subjects of attention at this particular season. Where the soil is not very good, as may be noted by a weak growth of the trees, a surface manuring may be yet given with advantage. Every day's experience more decidedly shows the great advantages to the pomologist of this method of applying manure.

Where new Strawberry beds are required to be made that will bear well the next season, the very first runners of the season should be selected, and layered into small pots. In about three weeks they should be cut from the parent stem, and left to a separate and independent existence for a few days. After preparing the ground properly for their reception, the pots should be well watered and the plants turned out into the spots designed for them. They will then grow finely the present season, and bear surprising crops of fine fruit the next Spring.

A warm sandy loam is the best for a Strawberry bed. A low and damp one is, of all the most objectionable. Though warm and dry in one sense, it should be rendered capable of retaining moisture in the driest weather, and this can only be perfectly accomplished by draining and subsoiling. If the latter is done three feet deep, all the better.

Unless in a very sandy soil, a very heavy dressing of stable manure is objectionable. Wood-ashes, ground bones, and matters of a mineral nature are far more advantageous.

Strawberries for forcing are treated in pots, as we have already described; but instead of being transferred to the open ground, when well-rooted in small pots, are repotted into five or six inch pots, and these latter plunged in the ground to their rims in the spot the most favorable to Strawberry growth.

After having grown well, and when they show signs of having formed a good strong crown, they are to be taken out of the open ground and gradually ripened by withholding water,—taking care that it is not done so suddenly as to make the plants wither, or they will suffer much. Towards winter they can be set in a cold frame and covered with dry leaves for a slight protection from the frost till wanted. Many commence to force at the beginning of the new year, when they are brought into the greenhouse and must be set near the glass. A high temperature is fatal. 45° to 50° is sufficient for a few weeks, and 55° to 60° when the fruit is fairly set. They love to be frequently syringed, and guarded against Red Spider, which is their greatest pest. Where there is not the convenience of a greenhouse to force Strawberries, they may be had a few weeks earlier than usual by making a piece of ground slope to the south east, planting out as already described, for garden culture, and then setting a glass frame over them. The nearer the frame and glass can be brought to the soil, the better and earlier will the crop be. Protecting from frost in winter also adds to the earliness of the crop. The earliest variety to be had in the locality should be employed.

VEGETABLE GARDEN.

In many amateurs' gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The Pea is a cool country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They need support. All Peas grow better and produce more when grown to stakes.

Bush Beans may also be sown for late crops. A very deep rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them up to poles as they grow. The poles should not be too high: about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

The Lettuce is another cool country plant. It

can only be grown well in hot weather when in very rich and cool soil.

For winter use, Beets are occasionally sown now, and also Cucumbers for pickling purposes; but not often: and at any rate it must be attended to early in the month.

Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but many cultivators who grow for size and quantity only, believe they have the best results when growing them on the level ground.

Celery is the chief crop requiring attention. The great point is to get short thick-growing varieties, as the long kinds require so much more labor to blanch. The Boston Market variety is, therefore, popular, and is really a very crisp and nutty flavored variety. After so many trials with different ways of growing them, those who have their own gardens,—amateurs, for whom we write,—find that the old plan of sinking the

plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow manure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Salt in moderate doses is usually a wonderful special fertilizer for the Celery plant.

Late Cabbage is often planted in gardens between rows of potatoes, where it is an object to save space. Some fancy that the Cabbage is better preserved in this way from the Cabbage-fly, which they say prefers the potato; but on this point we are not sure. We do not think the Cabbages do quite as well as when they have the whole ground to themselves; but of course a double crop could not be expected to be quite so fine.

COMMUNICATIONS.

THE EVERGREENS OF CALIFORNIA.

BY JOSIAH HOOPES, WESTCHESTER, PA.

Read before the Penna. Hort. Society, June 7th, 1870.

Perhaps no country in the known world has been more liberally favored with all that is grand and beautiful in vegetable life, than has California. Whether we are particularly interested in the smallest plants with their gorgeous flowers,—in ligneous shrubs clothed in attractive foliage, and emitting delightful fragrance,—in deciduous trees with a semi-tropical aspect,—or lastly, Evergreens of the most imposing and elegant forms,—the Sierra Nevada range of the "Golden State" cannot be surpassed in richness.

I purpose this evening, to call your attention exclusively to the various members of the Coniferae order, and especially to those which I have studied in all the glory of their native haunts.

In the Pine family proper, I will commence with the *Pinus contorta* Douglas—(Twisted-branched Pine,) a medium sized tree, rarely growing more than 50 feet in height, but forming one of the most beautiful and compact specimens I have ever seen. They are never found in

the valleys, but always near the summits of the higher ranges, especially surrounding some level plateau, where the soil is damp and cool. In such situations, it is of moderately rapid growth very dense in structure, bright glossy green in color, and regularly conical in outline. It is closely allied to the *P. inops* (Yellow Pine) of the Atlantic Coast, although far superior to the latter as an ornamental tree.

Pinus Fremontiana, Endlicher—(Fremont's Pine) is found at high elevations on the mountains, and is another of the smaller sized trees, which will undoubtedly prove very attractive in our collections. The leaves of this species present a very curious feature, being almost entirely monophyllus, *i. e.*, one leaf in a sheath,—on the younger shoots, and of a bright bluish green in color. The branches, although not so numerous as in the preceding, are nevertheless sufficiently so to form a moderately compact head, and when viewed in conjunction with the very attractive foliage, leave little to be desired. The cones are small and of a greenish tinge on the surface,—when open, displaying a few large edible seeds; these are in great request by the In-

dians, and are very nutritious and agreeable to the taste.

Pinus edulis, Engelmann—(Edible-fruited Pine) closely resembles the foregoing, the distinctive feature being in the size and shape of the cone. Young plants of this species have proven quite hardy in the Eastern States, and I trust we shall thereby secure a valuable addition to our collection.

Pinus ponderosa, Douglas—(Heavy Wooded Pine) is seen soon after commencing the ascent of the mountain range, and is one of the most numerous species until we approach the summit, when it ceases to be met with. In passing through the almost interminable forests that clothe these regions, we see many thousands of the Heavy Wooded Pine of all ages and sizes, from the handsomely shaped specimen of 8 or 10 feet in height, to the old scarred veteran towering up at least 150 feet. In the case of the latter, the rough, deeply seamed bark presents a curious appearance. Indeed the whole tree forcibly reminds one of a vigorous specimen of the Austrian Pine (*Pinus Austriaca*), but much coarser in growth than the latter species. As a strictly ornamental tree, it will therefore never prove popular, but in our larger plantations, on rocky eminences, and for distant belts and masses, it will be available and useful. One of the largest specimens I have seen, was growing in the beautiful valley of the Yo Semite, and measured 21½ feet in circumference 5 feet above the ground. I frequently met with trees from 15 to 18 feet in girth, and in fact the larger portion of them were at least 4 feet in diameter, with their huge bodies destitute of limbs for at least one-half their height.

Pinus Jeffreyi, Hort.—(Jeffrey's Pine) in size and appearance of tree, presents all the characters pertaining to the *P. ponderosa*. The cones however, are very different, and herein alone exists the specific distinction. Occasionally I have noticed a chance specimen with more slender leaves, but this peculiarity is not constant. It is hardy, a rapid grower, and would make an admirable shelter.

Pinus Sabiniana, Douglas—(Sabine's Pine) belongs entirely to the Foot Hills at the base of the mountains, and in consequence, will prove of doubtful utility with us. Indeed, I do not know of an instance where it has proven successful; but nevertheless, it is remarkably elegant when young, presenting one of the most charming examples of the delicate graceful type of

Conifers to be met with. The foliage is about 12 inches in length, very slender, and of a peculiar light bluish green color. All the young shoots are likewise tinted with a pretty glaucousness, thus adding to its charms. The older trees do not attain a large size, and differ from other species in the form of the head, which is always branched at the summit, and spreading after the manner of many deciduous trees.

Pinus Torreyana, Parry—(Torrey's Pine) greatly resembles the foregoing in manner of growth and general appearance of foliage. If hardy, it would prove a decided acquisition here, but from its close affinity to the Sabine's Pine, and its still warmer locality, I very much doubt its utility with us in the Middle States.

Pinus insignis, Douglas—(Oregon Pitch Pine, Seal Pine, &c.) is found along the coast near San Francisco, and is frequently seen in cultivation in the gardens of that City. When young, the trees are remarkably dense and elegant in appearance, but the mature specimens present rather a ragged and open structure. The *Pinus radiata* of Don, is not distinct from this species.

I now arrive at the grandest of all our Pinus proper,—*Pinus Lambertiana*, Douglas (Sugar Pine, Lambert's Gigantic Pine, &c.) This species is even more sub alpine in its choice of location than *P. ponderosa*, and as a natural consequence, is entirely hardy with us. The sight of these great trees rising in the air to the height of 150 and 200 feet, with a clean shaft of 75 or 100 feet without a limb, presents a grand spectacle. I measured a large number of specimens, varying from 20 to 25½ feet in circumference, and it was no uncommon sight to see several of this size standing close together. The ground beneath was usually covered with the huge cones, which were often at least 20 inches in length. The leaves are not unlike those of the *P. strobus*. (White Pine) excepting that they are more rigid, and of a darker green in color.

Pinus monticola, Douglass (Short-leaved Weymouth Pine, Mountain Pine), also closely resembles our White Pine, but has a larger cone, and rather shorter leaf. It grows to a large size, and is entirely hardy in our climate. I only noticed it in localities where the preceding species was growing.

Leaving the Pines, we now pass to the next genus of importance,—the *Abies* or Spruce family. Soon after commencing the ascent of the mountain ranges, we find specimens of *Abies Douglassi*, Lindley (Douglas's Spruce), and as

we rise still higher, a large portion of the forests are composed of this tree. The younger specimens are really charming; not only on account of the rich glossy green color of the foliage, but more particularly for the graceful drooping habit of the branches. As to their size: I measured many trees whose bodies were from 15 to 18½ ft. in circumference.

Abies amabilis, Lindley (Lovely Silver Fir), is justly named, for the most indifferent observer of trees could not possibly pass through the great forests of this species which clothe the summits of the Sierra Nevada, without experiencing a feeling akin to awe. So dense is the verdure, and so numerous the trees, that the darkness on our path induces the belief that the dusk of evening is near at hand; and yet, as we emerge from these vast clumps into a cleared space, where the bright sunlight glances through the foliage, the effect changes almost like a kaleidoscope, into the most brilliant tints of blue and green. Such is the aspect of the Lovely Silver Fir. In size, I may say they form no exception to the neighboring trees, for I saw very many that were from 20 to 23½ feet in circumference, and with a naked body of 100 feet in height,—the foliage branching out in a dense mass at the summit.

Abies grandis, Lindley (Great Silver Fir), I found in the same localities as the preceding, and about equal in size and number. Well does it merit its name; and had I even the time to give you a perfect description of its surpassing beauty and grandeur, I could not do it simple justice. It differs from *A. amabilis* in having the leaves arranged strictly in two rows, long, and slightly incurved at the extremities. The color is pale green, but the great height of the old trees,—200 feet and upward,—leads one to believe that the foliage is exceedingly dark. The odd-looking cones stand erect on the summit, and are rarely seen on the younger plants.

The only Juniper I noticed in California, was the really beautiful *Juniperus occidentalis*, Hooker (Rocky Mountain Juniper). A specimen is found on one of the highest peaks near the Yo Semite Valley, where the bleak winds and cold storms for many years have not marred its symmetry. The silvery foliage, thickly interspersed with purplish-brown berries, presents an agreeable picture to the lover of trees. I am happy to say it succeeds well in our Eastern collections.

One of the largest trees to be found in California, excepting only the Sequoia, is undoubtedly the *Libocedrus decurrens*, Torrey (Incorrectly

White Cedar, in its native locality). Many of you will doubtless recognize it as the *Thuja gigantea* of foreign nurseries and authors, and as such, introduced into our collections from abroad. I found vast numbers of it on the steep mountain sides, at high elevations, and especially in the vicinity of the Yo Semite Valley. The trees, when young, are very handsome, forcibly reminding one of a fine specimen of *Arbutus*, but much more glossy, and lighter in color. The finest specimen I saw was 25½ feet in circumference, and over 200 feet in height.

Taxus brevifolia, Nuttall (Short-leaved Yew), forms but a small shrub in California, although further north it assumes the proportions of a tree. In foliage, it approaches more nearly the handsome *T. adpressa* of Japan, than any other species. The brilliant scarlet fruit scattered thickly over the plant, contrasts charmingly with the dark glossy-green of the leaves.

Torreya Californica, Torrey (Californian Nutmeg Tree) is quite rare; but I was fortunate in finding a very fine specimen on the cliffs at the foot of the Yo Semite. It is Yew-like in character, forming a medium-sized tree, with long, dark-green glossy leaves, very sharp pointed. The fruit, as its name suggests, is not unlike a nutmeg in appearance, but totally unfit for use. I am afraid it will not prove hardy here; but should it do so, we may anticipate much pleasure in its introduction.

I close my descriptions with the most majestic of all our native trees, the *Sequoia gigantea*, Torrey (Great Tree of California), and popularly called "Washingtonia" and "Wellingtonia." During my journey over the Sierra Nevada Mountains, I had the pleasure of visiting the extensive group known as the "Mariposa Grove," embracing the largest trees to be found. I shall not soon forget my feelings, when, after having ridden all day through forests of great Pines and Firs, I emerged suddenly into a little valley, and found myself surrounded by these wonderful trees. The abrupt change in character was so new, and almost incomprehensible, that I lingered among these strange forms, until the quickly passing hours warned me I should once more be obliged to resume my journey towards civilization. The casual observer cannot at first comprehend their immensity,—but standing close by their sides, and looking steadily up into their great shaggy tops, the vastness and sublimity of their proportions almost imperceptibly steals upon the senses. As a detailed description of

these wonderful giants in the vegetable world would occupy too much of your time, I must refer you to their published history, with the remark, that "the one-half hath not been told."

I might extend this discussion, by describing many other species of Conifers growing in California, but as I have only seen cultivated specimens of some, and dried herbarium specimens of others, I shall pass them by at this time. Before closing my remarks, I desire to add, in justice to the subject, that the great difficulty in my way this evening, was not in finding sufficient items of interest to impart, but that I might so curtail my descriptions, as to avoid wearying my audience,—and such I hope has been the case.

TREES AND SHRUBS AT FAIRMOUNT PARK, PHILADELPHIA.

BY WM. T. HARDING.

Thinking it might be interesting to the readers of the *Gardener's Monthly* to see a list of the Trees and Shrubs, indigenous and cultivated, growing within the limits of Fairmount Park, which were blooming (and many are so now, May 30,) during the months of April and May, I have made out a list of such as I have personally seen and examined while in flower. Of Trees and Shrubs, there are genera 56 and species 111. The number of herbaceous plants are, genera 63, species 101. The plants, trees and shrubs herein named are by no means a complete catalogue of all within the Park, but of such as were actually blooming when noted:

TREES AND SHRUBS.

ACER.	Maple.	HALESIA.	Silver Bell.
saccharinum....	Sugar	tetrapetala....	Four-winged
dasycaium....	Silver-leaved	LAURUS.	Laurus.
platanoides....	Norway Maple	sassafras....	Sassafras Tree
campestre....	English Maple	leucodermis....	Spice Bush
pseudo-platanus....	Sycamore	LIRODENDRON.	Tulip Tree
rubrum....	Red Maple	tulipifera....	Tulip Flowering
NEGUNDO.	Box Elder.	MORUS.	Mulberry.
fraxinifolium....	Ash-leaved	alba....	White
CELTIS.	Beaver Wood	rubra....	Red
occidentalis....	Western	NYSSA.	Sour Gum Tree.
FRAXINUS.	Ash.	v. llova....	Hairy
Americana....	American	DIOSPIROS.	Persimmon.
juglandifolia....	Walnut-leaved	Virginiana....	Common Virginian
sambucifolia....	Elder-leaved	SALIX.	Willow.
ÆSCULUS.	Horse Chestnut.	fragilis....	Brittle
hippocastanum....	Common	nigra....	Black
Ohioensis....	Ohio	vitellina....	Golden
rubicunda....	Ruddy	Russelliana....	Russell's
pallida....	Pale-flowered	laurelfolia....	Laurel-leaved
PAVIA.	Pavia.	caprea pendula....	Kilmarnock W'p
flava....	Yellow	rosemarinifolia....	Rosemary-leaved
humilis....	Humble	CYDONIA.	Quince.
CERASUS.	Cherry.	Japanica....	Japan
multiflex pendula....	Weeping d'f	Japanica alba....	White
Virginiana....	Vir. Bird Cherry	vulgaris....	Common
CERCIS.	Judas Tree.	KALMIA.	Kalmia.
Canadensis....	Canadian Tree	latifolia....	Broad-leaved
BETULA.	Birch.	FORSYTHIA.	Golden Bell.
alba....	White	viridissima....	Green-leaved
nigra....	Black	ZANTHOXYLUM.	Toothache.
CASTANEA.	Chestnut.	traxinellum....	Ash-leaved
vesca....	Common	STAPHYLEA.	Bladder-nut.
CORYLAS.	Hazel.	trifolium....	Three-leaved
Americana....	American		

SYRINGA.	Lilac Tree.	GLEDITSCHIA.	Locust.
vulgaris....	Common	tricanthos....	Three spined
alba....	White	inermis....	Thornless
persica....	Persian	CHIONANTHUS.	W. Fringe
CALYCANTHUS.	Sweet Shrub.	Virginica....	Virginian
Florida....	Flowering	GYMNOCLADUS.	Ky. Coffee
EDUONYMUS.	Burning Bush.	Canadense....	Canadian
atropurpureus....	Dark Purple	ALNUS.	Alder.
Americana....	American	glauca....	Menly-leaved
LIGUSTRUM.	Privet.	MAGNOLIA.	Magnolia.
communis....	Common	cordata....	Heart-shaped leaf
RIBES.	Ribes.	tripetala....	Umbrella Tree
aureum....	Golden-flow'd Currant	purpurea....	Purple-flowered
CORNUS.	Dogwood.	purpurea gineilis....	Slender purp. fl
Florida....	White-flowered	AMYGDALUS.	Almond.
sericea....	Silky	perisera flore pleno....	D. Persian
CRATEGUS.	Hawthorn.	AZALEA.	Rosebay.
oxycantha....	English	viscosa....	Clammy
crusgalli....	Cockspar	BERBERIS.	Barberry.
FAGUS.	Beech.	vulgaris....	Common
sylvatica....	Common wood	atropurpurea....	Dark Purple
QUERCUS.	Oak.	SPIREA.	Spiraea.
nigra....	Black	prunifolia....	Plum-leaved
falcata....	Spanish	Reevesii....	White-flowered
alba....	White	KERRIA.	Kerria.
discolor....	Two-colors	Japanica....	Japan
rubra....	Red	DEUTZIA.	Deutzia.
prunus....	Chestnut	scabra....	Rough
quercitron....	Dyer's	gracilis....	Slender
heterophylla....	various-leaved	crenata fl. pl.	Donk Pink flow'd
CARPINUS.	Horn Beam.	VIBURNUM.	Viburnum.
Americana....	American	prunifolium....	Plum-leaved
PLATANUS.	Buttonwood.	lanatoides....	Lantana-like
occidentalis....	Western	oxyacanth....	Tree Cranberry
JUGLANS.	Walnut.	WEIGELIA.	Weigelia.
regia....	Royal	amabilis....	Lovely
nigra....	Black	rosea....	Rose
compressa....	Shellbark	PHILADELPHUS.	Mock Orange
macrocarpa....	large fruited	coronarius....	Common
alba....	Common Hickory	grandiflorus....	Grand-flowering
porcina....	Pignut	RHUS.	Mist Tree.
TILIA.	Linden.	cotinus....	Wild Olive
Americana....	American	LONGICHA.	Honeysuckle.
rubra....	Red	tartarica....	Tartarian
Europaea....	European	alba....	White
PAULOWNIA.	Paulownia.	xylostemma....	English Fly
imperialis....	Imperial	GLYCINA.	Glycina.
BROUSSONETIA.	P. Mulberry.	WISTARIA.	Wistaria.
papyrifera....	Paper	frutescens....	Blue American

HERBACEOUS PLANTS.

ERIGERON.	Mountain.	ERYTHRONIUM.	Violet.
bellidifolium....	Daisy flowered	Americana....	American
PANAX.	Ginseng.	BARBAREA.	Mustard.
quinquifolia....	5-leaved	precoc....	Early
pentstemon....	Pentstemon	CORYDAIS.	Corydalis.
pubescens....	Hairy	lutea....	Yellow
OXALIS.	Wood Sorrel.	FUMARIA.	Fumaria.
acetosella....	Common	officinalis....	Officinalis
violacea....	Violet-flowered	SENECIO.	Groundsel.
stricta....	Upright	urea....	Yellow
CARDAMINE.	Judy Smock.	VA. ERIANET.	Lamb's-telluce
Pennsylvanica....	Pennsylvanian	radiata....	Radial
DENTARIA.	Tooth Wort.	ulitoria....	Salad
laciniata....	Jagged	AQUILEGIA.	Columbine.
ARABIS.	Wall Cress.	Canadense....	Canadian
falcata....	Sickle-pod	VIOLA.	Violet.
TRADESCANTIA.	Spider Wort.	pedata....	Pedate
Virginica....	Virginian	blanda....	White
rosea....	Rose colored	lancoolata....	1 lance-leaved
VERONICA.	Speedwell.	hastata....	Halberd-leaved
scitigera....	Bristly	sagittata....	Snow-leaved
arvensis....	Cornfield	rotundifolia....	Round-leaved
serpyllifolia....	Serpyllium-leaved	trifoliata lutea....	Three-leaved Yel
CONVALLARIA.	Lily of Valley	striata....	Striped
major....	May	arvensis....	Field
SMILACINA.	Smilacina.	CHELIDONIUM.	Colandine.
racemosa....	Racemose-flowered	major....	Large
trifolia....	Three-leaved	ANEMONE.	Anemone.
b folia....	Two-leaved	thalictroides....	Thalictroid-like
POLYGONATUM.	Salomon's	memorosa....	Grove
multiflorum....	Many flowered	SINAPIS.	Mustard.
SAXAFRAGA.	Saxifraga	nigra....	Common Black
Pennsylvanica....	Pennsylvanian	LEONTODON.	Pandelion.
Virginica....	Virginian	taxacanth....	Common
HOUSTONIA.	Houstonia.	HERACLIUM.	Harckweed.
cernua....	Blue-flowered	venosum....	Veined-leaf
CLAYTONIA.	Claytonia	RUNEX.	Rock.
Virginica....	Virginian	crispa....	Curled
HEPATICA.	Hepatica.	obtusifolium....	Obtuse-leaved.
triloba....	Three-lobed	KRIGIA.	Krigia.
ALSINE.	Checkweed.	Virginica....	Virginian.
pubescens....	Pubescent	MISCARIA.	Grape Hyacinth.
media....	Mediate	botryoides....	Botrys-like

CHEROPHYLLUM *Chervil*
Canadense... Canadian
SMYRNIUM *Alexanders*
trifoliatum... Three leaved
purpurea... Purple
TRILLIUM *Trillium*
cernuum... Drooping-flowered
ARALIA *Aralia*
nudicaulis... Naked-stemmed
THALICTRUM *E. Mead Rue*
dioecium... Dioecious
CAULOPHYLLUM *Caulophyll*
thalictroides... Thalictrum-like
asarum... Ginger Root
Canadense... Canadian
COCHEALIA *Sourgrass*
arnica... Horseshoe
LAMIUM *Archangel*
anapellae... Stem-clasp Hen
GALIUM *Bedstraw*
Aparine... Cleavers
thictorium... Dyer
PODOPHYLLUM *May Apple*
peltatum... Peltate-leaf
CHRYSOPLUM *Starfruit*
oppositifolium... Opposite-leaved
RANUNCULUS *Crowfoot*
Pennsylvanicus... Pennsylvanian
bulbosus... Bulbous
fascicularis... Bundled
abortiva... Abortive
SYMPLOCARPUS *Skunk Cabbage*
foetidus... Foetid
angustifolium... Narrow-spined
ARUM *Arum*
triphyllum... Three-leaved
atrorubens... Dark Purple Stalked
DRABA *Draba*
verna... Vernal

[It is the misfortune of the Botany of large cities, that the cities soon grow, and the localities are destroyed. Barton's "Flora of Philadelphia," and Bigelow's "Flora of Boston," are instances of labors of love in a measure lost. The Botany of Fairmount Park is, therefore, an excellent idea. Here is a tract of 2000 acres, which will be forever devoted to public uses. We believe also that the Commissioners in charge of the Park intend to employ little of the art of Landscape Gardening in the make up of the Park; but as they say in their Annual Report, simply make walks and roads around the beauties nature has already placed there. This will much help the retention of the habitats of many beautiful native plants, and give the lists of Mr. Harding great value.—ED.]

FLORAL HINTS.

BY MISS. A. G., READING, PA.

CLEMATIS.

Knowing the Clematis is difficult to propagate, have enquired of regular and amateur gardeners their mode of increasing these handsome vines. Their accounts were all discouraging. I learned that it often required a year to root a branch laid down, and slightly cut; and that the seed was equally as long coming up. But several years ago, receiving one from a friend, I found the root separated easily into two portions, both

CHRYSANthemum *Chrysanthemum*
leucanthemum... Ox-eye Daisy
GLECOMA *Ground Ivy*
rotundifolia... Round-leaved
hederacea... Common
POTENTILLA *Cinquefoil*
sarmentosa... Canadian
FRAGARIA *Strawberry*
vesca... Wood
GERANIUM *Crane's Bill*
maculatum... Spotted
ORNITHOGALUM *Star Beth*
umbellatum... Umbellated
EPIGEA *Ground Laurel*
repens... Creeping
SALVIA *Sage*
lyrata... Lyre-shaped
MALAXIS *Malaxis*
bilfolium... Lily-leaved
NASTURTIUM *Nasturtium*
officinale... Officinale
MEDEOLA *In. Cucumber*
Virginica... Virginian
SISYRINCHIUM *Bl-eyed Grass*
uncus... Iris-leaved
HEUCHERA *Ajum Root*
Americana... American
PLANTAGO *Plantain*
major... Large
Virginica... Virginian
lanceolata... Lance leaved
crassifolia... Thick leaved
TRIFOLIUM *Clover*
pratense... Common Red
repens... White Clover
campestre... Slender Wood
ANTENNARIA *Ant.*
plantaginacea... Plantain-leaved

of which grew. This was the one bearing a bell-shaped, dark purple flower. Later I separated a large blue one. This Spring I had occasion to move a blue Clematis out of the grass, and in trying to see if I could get off a portion with a root attached, found it divisible into 5 parts, each with a good supply of roots. I mentioned my success to a very experienced German gardener, who said he knew of this means of increasing them. He said also that the seed would soon germinate, if scalded; and plants could be raised a foot or two high in the course of a year. I knew of 2 fine double Clematis lost by ladies in this city, and now think they might have died for want of sub-division, as Forget-me-nots do. Both of them resembled the passion flower; but were double in the centre; one having light shades of lilac, purple and green, and the other green and white. The latter was not quite as handsome as the first. I have not been able to obtain their names. It was said one came from Germantown, Pa.

ENLARGING AND KEEPING PANSIES.

I have been quite successful in enlarging the size of Pansy blossoms by watering them twice a week with manure water. They are now larger than when brought from the gardener. I know of another amateur who has much increased their size by watering them with glue-water. A piece of glue 4 inches long by 2 in width is sufficient for a bucket of water. Of manure water, I give a pint (strong) to each plant.

The gardener of whom I bought my Pansies is second to none I have seen in raising large flowers. He tells me he uses half well rotted manure and half garden soil—which on his grounds happens to be a red shaley clay. He also says that in order to keep them through the summer (for in many places they die out) they should be lifted as they show signs of diminishing in vigor, be trimmed closely, and then set back with manure placed beneath and around them, and on top of the ground. With this treatment they will bloom finely in the Fall.

DOUBLING THE BALSAM FLOWER.

Some years ago when sowing the seed of the Balsam (or Lady Slipper) in a poor soil, I tried the experiment of mixing in the ground for half the row, fresh chicken manure. When the Balsams came into bloom, those growing in the manured half were fine and double; while those in the remainder were indifferent single ones.

Some years afterward, I tried the experiment with *young plants*, but excepting a luxuriant growth of stalk and leaves, there was no success, the flowers being poor and small.

CHANGING THE COLOR OF A ROSE.

A lady of this city told me, that at hog killing time some blood was accidentally spilled round a pink rose which she had planted at the lower end of her garden. What was her surprise when next it bloomed to find it turned into a dark crimson.

THE VALLOTTA PURPUREA.

This beautiful summer blooming Lily can be kept dry all winter in the cellar, if warm enough to prevent freezing. Its scarlet flowers I have always seen of a cup or tulip shape; but I saw lately an illustration of it with the flowers *wide open*, like the white garden Lily. Is there another kind, or was this a poor semblance of it. I have had several given to me lately, one represented as white, another pink, another scarlet and yellow. The latter having bloomed while in possession of the lady who owned the plants, it seems to make good the representation of the others by the gardener of whom she bought it. One gardener calls them Italian Lilies; but I see it stated that they are natives of the Cape of Good Hope, and grow in damp situations. I have seen them blooming with stems varying from a foot to nearly two feet in height, with from 4 to 7 blossoms on a stem. The finest specimen was grown in a 5 or 6 inch milk crock, in common garden soil well mixed with horse manure.

A SUMMER BLOOMING BULB.

I have a bulb which bears a white flower, resembling a Pancratium, excepting that the flower is more lily-shaped and not so delicate. There is a green shading to the inner part of the petals. We have tried the experiment of keeping the bulb dry during the winter, like a Gladiolus. It keeps quite as well as the latter, if not put into too warm a place; as it will then begin to show signs of growth as early as February, our former time of potting it.

I endeavored to keep the Pancratium last winter in the same way, but towards Spring the bulb withered and I was obliged to have it potted. This had a long bulb; the other was shaped like an onion and is readily known by its light brown tint and the peculiar sheath from which the leaves spring.

HOW TO MAKE A CHEAP HOT BED FOR RAISING SLIPS.

The following plan was recommended to me by a friend, who had tried it with success. I have also tried it and can recommend it. It should be used in summer time. Get two or three boxes 18 inches long, and 10 or 12 inches wide (or a less size will do), with a pane of glass to cover one exactly. Have a hole dug deep enough (in a sunny situation) in the yard or garden, to place in the boxes on a level with the ground, first taking out the bottoms of the boxes and fitting one nicely on the other. Fill up the first with fresh stable manure. In the second place 3 or 4 inch of earth allowing space enough between the earth and the top of the box, to set in a pot or basin, and leave 3 or 4 inches above it (or even more); pour in a bucket or two of water and set on the glass. Let it ferment two or three days, then fill the flower pots with well washed yellow or silver sand (the latter best) and put in the slips. White wash or smear with whitening, and water the under side of the glass; set in the pots and cover tight. Of course some of the slips may die, and they will need seeing after to know if the sand keeps damp. So it will be well to put in several slips of a kind, as, "The best laid plans of mice and men gang aft aglee."

FOREIGN GRAPES.

BY CHEMIST, PHILADELPHIA.

Over thirty years ago a friend of mine in the nursery business raised Hamburg Grapes in an old fashioned pit of the day, generally employed for raising melons and cucumbers, he used for propagation, &c. It was 60 feet long, divided into compartments of about 10 feet square, a lean-to and double sash. He had a walk at the back about 3 feet so as to command the pit; along this he trained his vines on rafters, horizontally. Always had an unfailing crop for private use; gave them but little attention, and pruned in fall or spring when he had time.

These old pits have gone out of use, but, believe me, they did much better service than any modern ones I have seen. The compartments were filled with the manure as it came from the stable daily; he had a supply of peat and mould for all purposes. Made plenty of money and did a large business; he died since I came to this country, worth over £50,000.

NEW GRAPES—WHAT SHALL I DO WITH THEM.

BY MR. GEO. HASKELL, IPSWICH, MASS.

I have between six and seven hundred Hybrid Grape-vines, from one to eight years old, and two or three hundred of this year's planting; the product of more than thirty crosses, some of one half and some three-fourths foreign blood.

Eighty-three of these vines have born fruit for more than one year, and I have selected and saved the wood of 20 of them that were best in vine and fruit. My location upon the sea coast, 25 miles north east of Boston, is not favorable to the vine, and yet I have never protected these from mildew or the cold of Winter; leaving all to perish that could not withstand these obstacles. I therefore think the vine of these selected plants will be healthy and hardy in every part of the country. These all mature their fruit as early as the Concord or Delaware, but the Summers here are not sufficiently long and warm to mature thoroughly and with certainty more than 4 or 5 of them. But several of the others, imperfectly ripened here, are sweeter and better flavored than any hardy grape now cultivated here, or generally known.

I wish to have these 20 varieties tried in other parts of the country, (and perhaps others that are in fruit this year.) But if I distribute them for this purpose I shall surrender to the public the products of many years of careful labor, and no just man would expect this. If I become nurseryman and propagate and offer them for sale before they were tried and proved elsewhere and by others, I would be met with the effectual objection—that the public have been imposed upon too often heretofore to be caught again; few would be sold, and years would elapse before their merits and demerits could be generally known.

I am, therefore, inclined to think it would be best to purchase land in the central part of the country on which to plant and try them, where the fruit would mature with certainty, before offering the vines to the public in any form.

Would not this be the best course? and would a trial of them in the vicinity of Philadelphia, Baltimore, Washington or Richmond be a satisfactory test of their qualities, and of their adaptation to the same latitude in the interior of the country? Which of these neighborhoods is most unfavorable to the vine?—for in such I should like to try these.

If Congress would give the originator of a new and valuable plant or fruit, not a patent right, but a copyright, the same exclusive right to multiply and sell his production which they give to the author of every silly and pernicious novel, I would, under such a law, cheerfully give amateurs and nurserymen in every part of the country, gratuitously, these 20 or more varieties for trial in their respective sections, reserving a small royalty on such as should be propagated. In this way their quality and adaptation to every part of the country could be decided in a few years, and there could be no grinding monopoly in the propagation of them.

Will you, or your correspondents, suggest what I had better do with them to test their quality in a warmer section than this, and their adaptation to the soil and atmosphere of our country generally?

[We give this communication prominence because it contains matter deserving more attention than it receives. It is clear that the patent laws as applied to general matters are inapplicable to new trees and plants, and yet the principle remains that a new plant or fruit should bring as great a reward to the raiser as any other new and good idea. If any one can suggest a good plan whereby this good object could be gained we should like to know. Also, to have suggestions in reference to the other inquiries of our correspondent. As a rule, the best localities, as far as the foreign grape is concerned, are northern ones. The farther south the more liable to disease. The trouble in the north is the lateness of ripening. A medium district would be best. —Ed.]

CALADIUM ESCULENTUM AS A VEGETABLE.

BY S., MACON, GA.

Travelling north through Philadelphia last summer I noticed in the gardens, grown as an ornamental plant, our common *Tanyah* (*Caladium esculentum*). I had no idea it would thrive so well so far north. The leaves were not near so large as we have them here sometimes, for I have seen them in favorable localities three feet long and two feet at least wide. Here we use it as a vegetable, and think them excellent washed and roasted, as potatoes are sometimes with the skins on.

When a boy, living in the north many years

ago, we used to dig up in woods roots called Indian turnips, and bake them in ashes which we made by kindling a fire in the woods. The root of this plant tastes very much like those Indian turnips, which will give a good idea of them to those who have no knowledge of them.

A rich, wet soil seems to suit them best. In this they furnish one big root and make many offsets in the manner of the common Tuberose, which side shoots make the sprouts for the next year's crop.

Besides this the roots can be more rapidly increased by dividing them into four quarters, and perhaps more, as you would do a rhubarb root.

I am told by a friend, that plants can be raised from the leaves, the leaf stalks rooting in warm, wet soil, but of this I have no knowledge of my own.

I think if you were to try that as a vegetable crop in your gardens, it might add one more to the many pleasant table dishes I so much enjoyed in my last summer's trip. We have better fruits than you in our country, but concede the palm to you in good vegetables.

CURCULIO—EXTERMINATION POSSIBLE.

BY J. E. CHAMBERLAIN, SEC. ST. JOSEPH FRUIT GROWERS ASS., MICH.

The importance of this subject; the demand for prompt and persistent action; the absolute necessity of arousing every peach, plum and stone fruit grower to destroy the Curculio, has led the Secretary of the St. Joseph Fruit Growers' Association, to the following conclusions:

Not a single day should be lost; for with united action 500,000 curculio may be killed in a single day.

There is no doubt on this point. This morning Hon. John Whittlesey called at the *Herald* office and stated that on the 14th inst, he killed 2,715 curculios about the roots of 200 trees, and on the 15th, in four hours on the same trees he killed 1,566 by actual count.

Mr. Whittlesey also stated that Mr. Ransom, Mr. Bonelle and himself had in five hours killed upwards of 5,000 curculios in a portion of three small orchards. That he had himself alone, in two days of eight hours each, killed one-half more curculio than were ever taken by three men, with the old fashioned sheet in a week. Mr. Whittlesey is one of the most successful and scientific fruit growers of St. Joseph, whose word is a bond; but he said, "do not believe me; go

to Mr. Ransom's orchard and see for yourself."

Entering Mr. Ransom's orchard the Secretary met Dr. Lyman Collins coming out. Dr. Collins is widely known for his successful peach culture.

"Well Doctor, Is it a success?"

"Most assuredly. I tried the experiment on eight of my trees in the evening, and the next morning took 105 curculio. I am going home to bug my whole orchard in this manner."

Wm. B. Ransom, the discover of the new method of exterminating the Curculio, was found on his knees in the back of his orchard examining his Curculio traps. This was at 10 o'clock A. M., and he had already killed 1,357 on 300 trees. The Secretary stooped down and lifted a corn cob not six inches long and found and killed 7 Curculio. There is no doubt whatever, that the long desired means of exterminating the Curculio is discovered.

HERE IT IS.

Put the orchard in the best order; level down the soil about the root of every peach tree, and smooth a circle for a diameter of two and a half feet from the tree as a center. Have the ground very clean around the base of the tree. Do not leave a single hole next the tree. Leave no place where the curculio can hide except on the shelter you provide. Now lay close to the tree, and close to the ground, about four pieces to a tree, either chip, or bark, or board, or lath, or rag, or corn-cob, or old leather, or anything for a covert.

The curculio will conceal itself under this shelter and may be destroyed by the thousands. Go around every day and turn over each chip, kill every curculio. They will generally adhere to the chip, but may often be found on the ground under the chip.

Probably no person in the United States has studied the curculio, and its habits, more carefully than William B. Ransom. For 15 years he has been trying newspaper experiments unsuccessfully. Last year when bugging he discovered that all the curculios dropped within two or three feet of the roots of the peach tree, and on examination found the little Turk sheltered on the trunk and in holes near the base and the under side of the principal limbs.

For the last fortnight Mr. Ransom has spent most all of the hours of the day laying on the ground in his orchard patiently watching and waiting for the first curculio to show himself. On the fourth of May a few single Curculios

were discovered, but not a single pair; on the 5th a few pairs were found coupling. Constant careful observation has led Mr. Ransom to these conclusions.

In the fall the Curculio seek a warm and safe shelter to hibernate. This either the ground or leaves, stumps, logs, old fences, woods and other congenial places of concealment. The first warm day in spring that starts vegetable life calls the curculio forth, and it proceeds to its feeding and breeding ground. They walk very fast, and then fly and feed generally at night, eating the young and tender leaves. The first warm days this year they fed, then the weather fell cold, and for a week Mr. Ransom found no indication of their feeding. Since Friday night the 13th, the weather warm, the Curculio have been feeding. They scatter all over the tree to feed and come down towards morning, and as late as 7 A. M., to hide.

They crawl on cold days and nights, and hide under the shelter of the trunk of the tree waiting to feed when the nights become sufficiently warm. The curculio uses the green peach only to hold its egg. It sometimes eats the ripe peach, also blackberries, quinces and other fruits.

Some idea of the quantity to be taken from a single tree may be found from the following; Mr. Ransom states that on the 14th he took 25 on the 15th in the morning 50; in the evening about sundown 15, and on the 16th sixty were killed from the same tree, and of these 41 were taken in a cluster under a chip two by three inches.

The Secretary visited Mr. Ransom at 1½ o'clock, P. M., and found he had in about four hours killed 2,109 by actual count, and went himself into the orchard and found curculio lying asleep under the traps in the intense heat of a boiling sun.

THREE ORNAMENTAL TREES.

BY CHRONICLER.

Larix europæa, "European Larch" is a native of Germany—grows fifty feet high, and of a spire shape. It is a deciduous conifer, and in foliage and form is one of the most beautiful trees of thrifty growth upon various soils and exposures, and its timber is most valuable for posts and railway sleepers. It is therefore a universal favorite, both for ornamental embellishment and its timber. Over two hundred years ago, the Duke of Sutherland saw it in the grandeur and

beauty of full maturity in Germany, and purchased seedling plants and took them home and grew them in flower pots in his glasshouses in Sutherlandshire, in the highlands of Scotland; they grew so rapidly, he set a few out in the open ground, and they proved hardy; he next purchased great quantities of seed, planted them in open ground, and in a number of years, he had several acres of them set as forests. Others got them and set them out largely, and now all throughout the British realm it is grown extensively, both as an ornamental tree and for its timbers. There, it thrives upon mountains and in valleys.

Schubertia disticha, "Deciduous Cypress" is a native of North America, grows forty feet high, of a conical form; its leaves are pine-like, and of the most beautiful green. No tree in existence is more ornamental than it, when clothed with its foliage of shining grass-green and of surpassing beauty. It naturally grows upon flat loamy lands. For the last quarter of a century, we have planted it extensively upon various soils and in different exposures, and it has thriven admirably in all. It can be used along with *Magnolia glauca*, Water Birch, Weeping Willow, Alder, &c., to embellish low wet spots upon pleasure grounds.

Betula alba, "White Birch" a native of Great Britain, grows forty feet high, with a clear straight stem six to ten feet, covered with white shining bark with a silvery gloss; the branches are dark brown, and the leaves a deep dull green; the head is slender and upright, and of a handsome form; the tree has no compeer in its peculiar beauty in the arboral world. Its appearance is striking and surpassingly ornamental. It should always be set alone, either in a row a few yards from a walk, or as a single standard upon the open lawn, so that it will be wholly seen and more admired. We have used it in embellishment upon many different soils and exposures, and it flourishes admirably in them all.

These trees may be set in a row, and by their peculiar habits of growth, a good view of the distance can be had between them. They may be set so far apart as to be alternated with any of the following evergreens of similar growth with themselves: say *Cupressus sempervirens*, *Lawsoniana* and *stricta*, or *Thuja occidentalis*, *Hoveyi* and *cristata*; but all should stand twenty yards from drives or walks for the spread of their branches.

HYBRID GRAPES.

BY CHARLES H. HIGBEE.

Read before the Essex Institute of Mass.

There are three species of the grape indigenous to New England, viz.:—*Vitis labrusca* (Northern Fox Grape); *Vitis æstivalis* (Summer Grape); and *Vitis cordifolia* (Winter Grape), as classified by Gray. Probably they have not changed much, if any, in their peculiar characteristics for centuries, or since that unknown distant time when species were first so constituted. Although these species have innumerable varieties, that have slight differences of fruit, foliage or habit, yet the great points of semblance are always preserved, and any one familiar with these points, can easily tell to which species any specimen belongs. By the laws of nature they are maintained, and any change from her standard she looks upon with aversion. The whole life and energy of a plant is devoted to reproducing its kind, and it gives to its offspring the predisposition for its own qualities.

Until lately the wild kinds have been somewhat cultivated, and almost every garden, twenty years since, contained one or more. The kind usually grown was the *labrusca*, and is familiarly known by every one. It has a peculiar flavor, that is pleasant in the early stages of its ripening; but at maturity, is strong and disagreeable to most persons. This strong flavor is called by the fruit growers 'foxy,' and by others 'grapey.' The *labrusca* bears the most palatable fruit of the three-named species.

At the present time, we rarely find the native kinds in cultivation, but they can be found along our country road-sides, pastures and swamps. The varieties of the *V. vinifera* (European Grape), have been frequently tried in various places in this country, have not flourished, and likewise have been discarded. But a race of good grapes has appeared, one by one, beginning with the *Isabella*, which was first circulated in 1818.

With all the plants and animals that man has domesticated, he has developed those qualities and parts most necessary to his wants and desires, and he can do this by selection, and giving to the subject all the conditions that make it flourish. When the wild grapes were domesticated, a change began, and having induced a vine to take one step forward in its fruit, according to the theory of Darwin, by sowing the seed, selecting the most improved seedling, and continuing the process, at last we have a perfect grape, excellent in every particular. The pro-

cess is very slow. The experiments of Mr. Geo. Haskell, of Ipswich, are very interesting on this point, and from them we learn how very slow is the process of improving by selection. He has raised thousands of seedlings of the wild grape in an open field, where they could not have any influence from other kinds, and raised several generations without any perceptible improvement.

It is very reasonable to suppose that the fine grapes of the Old World, and the Muscats, Black Hamburgs of our graperies, have attained to their present standard by this method, and it must have taken ages. No doubt from the earliest time they have constantly progressed. A quicker way of improving our native kinds, than by 'successive selection,' and one which I think has been the means of producing most of the various sorts now grown, is by hybridizing, and in this way at once adding the accumulated excellence of the foreign kinds to our own.

To Edward S. Rogers, of Salem, belongs the credit of first artificially hybridizing the grape. The idea first suggested itself to him in 1848, but was not acted upon until the spring of 1851. He crossed several varieties of pears, and hybridized the *V. labrusca* with *V. vinifera*.*

The vine taken was that of the kind called Mammoth Globe (a variety of the *V. labrusca*), which he bought of a person from Lowell, in 1846. It stood at the end of his garden, bordering on Federal street, and may be seen now climbing over an old pear tree. The pollen was taken from some Black Hamburg and Sweetwater vines that were growing in the same garden. These were obtained of Samuel G. Perkins, of Brockline, in 1834, and were grown for several years in the open air, and had borne several fine crops. The mildew began to trouble them, and in 1844 Mr. Rogers built the grape house over them for their protection.

On account of the smallness of the grape flowers and the peculiarity of the corolla in opening at the base and remaining united at the top, forming a cap, which often fertilizes as it expands, the grape was supposed beyond the reach of any interference in regard to its reproduction. These did not prove to be obstacles to Mr. Rogers. His account of his work is found in the *Horticulturist*, Vol. 8, Nos. 2 and 3, pp. 86 and 119. I will not repeat it here.

* I hereby make a distinction between a cross and a hybrid. The first is the offspring of two varieties of the same species, while the latter is from the union of separate species.

At first he was laughed at for the attempt, and our most learned horticulturists and botanists declared it to be an absurdity. But by the time the young hybrids began to fruit, he had several believers. In 1856, the vines that had grown in the original place, fruited; the rest the following year. This year he recrossed the hybrids with the *V. vinifera*, bringing vines bearing fruit, nearly identical with the foreign kinds. The fruit of No. 4 of the first lot crossed with the Muscat, has the peculiar flavor of the Muscat.

It seems very remarkable that so large a number of fine grapes have appeared within the last fifteen years, and particularly within the last twenty. And as shown by the experiments of Mr. Haskell, and by the laws of reproduction, as far as they are known, it seems that the cultivated kinds are not simply improved seedlings, but are natural hybrids. Then, too, we do not find the gradually ascending scale of excellence that might be expected, if they came by progression. Between the wild *labrusca* and the Isabella, Catawba, &c., there is a very wide difference. The seedlings of these kinds all tend back towards the original, and are much inferior to their parents, who have been elated by a favorable alliance. Again, the hybrids of Mr. Rogers' raising, resemble the "improved seedlings." No. 15 is frequently compared with the Catawba. Now all the attempts to cross the "improved seedlings" has resulted in producing grapes, so near the foreign kinds, as to be nearly or entirely worthless for open air culture in our climate, and closely resembling them in every particular. This was the same with Mr. Rogers' second crosses, as he calls them.

The introduction and dissemination of the European grapes has brought together the two species, and the result is, that every year we hear of a new grape springing up in some old garden. There has always been an uncertainty as to the origin of the common varieties, and I can find nothing in their history that conflicts with the views herein given.

RHODODENDRON CATAWBIENSE FOR CITY PARKS AND GARDENS.

BY R. BUIST, SR., PHILADA.

Your illustration of this beautiful evergreen in your June No. is capital, true to life and very opportune. The periodicals are teeming with its beauties and simplicity of its culture; your remarks add to the required knowledge of its

habits. There is a locality in which it seems quite at home, but is overlooked by all that I observed. It is well known that resinous trees and shrubs do not thrive in our city gardens or localities where there is much smoke; the Rhododendron does, and makes a very superb bush in a grass plat fully exposed to sun. You will have observed that Pine or Spruce trees have been repeatedly tried in our public squares, and have invariably failed; the grand substitute would be hardy Rhododendrons with the hardy sorts of Aucuba and evergreen Euonymus. We look to our great Park for a feature in Rhododendron planting excelling anything in this country. One more remark, we must not overlook the fact, that where the varieties have a touch of *R. ponticum*, they are too tender for our latitude, so are those where they have a severe touch of the crimson or Scarlet Asiatic varieties.

RURAL LIFE.

BY W. ELDER, LANDSCAPE GARDENER, PHILA.

Families who spend the summer in the rural districts, can now best appreciate the value and beauty of trees, while they enjoy their grateful shades, and those having estates of their own, and those who intend to possess rural estates, should observe the various species of trees on the way of their walks and rides, and note down the names of those they most admire, to embellish their own grounds in future; which give the best shades, which the handsomest forms and most beautiful foliage. The times of blooming are now mostly over, but yet what a beautiful diversity their variegated verdure makes, and how richly they make the landscape and the grounds on which they grow appear.

The various species of Ash, Elm, Oak, Maple, Linden, Poplar, Chestnut and Horse Chestnut, Beech and Birch; the Tulip tree, the Locust and Kentucky Coffee trees, the Sweet Gum, Magnolia and Mulberry trees; the deciduous Cypress and Larch trees; the Willow, Buttonwood and various nut trees; the Salisburia, Laburnum, Robinia, Purple Beech and the Althea and Elders of variegated foliage. Every species possesses its own peculiar beauty, and all are worthy of our highest admiration and the best culture and care we can give them. Who can help being struck with awe at the sight of trees in their nobleness and grandeur, and watch how beautifully they adorn and illuminate the landscape with their various tints in the autumn.

The above being *deciduous*, let us now look at the massiness and lasting beauty of the noble *Evergreens*. How beautifully diversified are the various species of Arborvitæ, Fir, Pine, Cedar, Juniper, Cypress, Holly, Picea, &c. The Araucaria, Libocedrus, Cryptomeria, Sequoia and many other genera are all worthy of our best esteem, culture and care.

If we also observe how delightfully comely are the various species of dwarf evergreens, and the numerous families and individuals of deciduous

flowering and fruiting shrubbery, there will be no limit to our admiration and wonder. The various sizes they attain at maturity, and the habits they assume, are interesting to observe, and the difference in the colors and perfumes of the blossoms of the numerous species of the deciduous blooming and fruiting kind "that scent the evening gale," is charming in the highest strain.

All praise to him that gave the trees,
That waft so comely in the breeze.

EDITORIAL.

EMBRYONIC INARCHING.

It will be remembered that the chief ground taken against Mr. Blodgett's point that the sweet and sour apple originated from the halves of two buds inarched together, was the *impossibility* of the thing. It was said that unless the germs were halved there could be no inarching, and yet so small must be these ultimate germ-cells that they could not be divided by the sharpest instrument we possess without destruction.

This seemed very reasonable, if it were necessary to cut these germ-cells, whatever they may be; but the writer's studies in the adnation of the parts of plants, and the many peculiarly distinct forms resulting from mere cohesion alone of parts already partially formed rendered it just possible that this cell division might not be necessary.

Thus, without feeling satisfied either way, for the last two or three years we have been on the look out for some facts which should set the matter at rest.

The first idea that suggested itself was to halve two scions so exactly that they should make but one, and then graft it. Most of these died; but *three have lived*, and have put forth shoots several inches long. Yet possibly one-half-side has died in each case, but the exactly central position assumed by the bud indicates that both have grown and have become thoroughly incorporated into one shoot. But of course the exact state of the case cannot be known until the plants grow farther, or bear fruit.

We have, however, met with another fact which proves conclusively that embryonic points can unite and form one perfectly homogenous

branch. It is well known to botanists that the usually one seeded ovaries of *moraceous* plants or plants of the Mulberry family have occasionally two seeds,—and it is further known to those who grow one of these plants, the Osage Orange, on a large scale, that it is not unusual for *the two germs to get together in the same seed coat*. These result in what are known as twin plants. The points of union seem first at the collar or precise point where stem and root first diverge—the junction of the cotyledons or seed-lobes with the stem. The descending axis is usually united at a distance of from two to four inches when they (the two originals) separate and become distinct parts. The ascending axis, however, seldom unites, but separates at once from the cotyledonous point, and makes two stems. We have thus two plants perfectly united at the middle like the Siamese twins, but distinct above and below.

We have, however, found one plant wherein the points of these two independent origins have united, and they have formed *one thoroughly perfect stem* in which there is not the slightest trace of a duality of origin, while the two-root systems have remained perfectly distinct.

This specimen we have presented to Dr. Geo. Engelmann, of St. Louis, to whose indefatigable labors in Botany the world owes so much.

Now there can be no more reason why two germ points in buds cannot unite together without division there, than the two points in a seed-coat, and we are compelled to believe that the ground assumed by Mr. Blodgett, and long before him Erasmus, Darwin and others, is good ground,—sound physiological law,—and we see

in it a field for the most wonderful class of hybrid fruits we have ever known.

How very strange it is that with this idea before the world for over a hundred years so few should ever have tried to realize its truth. The fact is, the world is cursed with a set of lazy closet philosophers who build entirely on the observations of a few dozen hard working collectors of facts. With these they mix the fancies of their own dreamy night thoughts, and thus work out "unmistakable" principles and "natural laws," which are not laws at all. If we could only induce more personal observing and less pen theorizing, our progress in the path of perfection would be much more rapid than it is.

Of course such habits will lay those who possess them open to the charge of "wishing to be authorities" in disputed matters,—but the satisfaction of feeling sure of one's position will make such a reputation cheap, and one which any one can well afford to have.

THE STRAWBERRY SEASON.

A rather extensive tour through the Strawberry regions of western and southern New Jersey, revealed to us the fact that the Wilson's Albany Seedling is still the most popular variety with the market growers. In some instances, the *Agriculturist* was highly depended on, and again *Downer's Prolific* and *Boyden's Green Prolific* pistillate, when grown with a fertilizing variety, were popular in some instances. It was rather mortifying to our love of progress, to find so many of our new and much-be-praised kinds, consigned to such an early tomb. There are a few kinds which seem to have yet a slight hold on life, hanging as it were in the balance of their grower's estimation,—which seemed as if after all they might perhaps be valuable, or they might not. Of these, were Fillmore, Brooklyn Scarlet, Triomphe de Gand, French's Seedling, New Jersey Scarlet and a few others. But the almost universal reply to the question, "which after all is your first choice for a paying crop?" was "Albany Seedling." We found, however, the impression widely prevailed, that quality was not worth studying in the question of profitable market kinds. They consider that size, abundance and regular annual crops, are all sufficient. Flavor, they insisted, was all a matter of sugar and cream. We took pains to watch the sales made in our retail markets, to know how this works, and we are sure it is a mistaken idea.

We saw many a box of Albany's refused, because they were known to be sour. Most likely in the early history of fruit consumption, a strawberry "is a strawberry," especially if cheap; but the time will come when people get to love better things, even though they cost more; and we are not sure that our Jersey friends are right in this universal attachment to the Albany Strawberry.

CEMETERIES AND CEMETERY PLANTS.

It is not easy to decide who is the author of the idea of our modern cemetery; but it is safe to say that to Loudon, who did so much towards Kensall Green Cemetery near London, it owes much of its popularity and success. Family grave yards have long existed in the United States, but as an idea separate and distinct from houses of worship, it dates back only thirty-five years, when Mount Auburn near Boston was projected. This was the first attempt of any consequence to disconnect the cities of the dead from associations with which they had long been connected,—to work out the plan of the beautiful garden which for hundreds of years could go no farther than a rose bush or a periwinkle or the half neglected sod of a churchyard, the hay crop of which was the perquisite of the grave digger.

Philadelphia was fortunate in having amongst its citizens a gentleman of a highly cultivated horticultural taste, and at the same time possessing that practical turn of mind which foresees long before the time comes what necessity will bring forth. He visited Boston, studied the Mount Auburn plan, returned to Philadelphia, and, associating with himself a few friends, established Laurel Hill the following year.

Like all new ideas, Laurel Hill met with strong opposition from those very persons whose interests, and indeed whose natures unknown to themselves the cemetery was particularly calculated to serve. To one not versed in the philosophy of human actions, it seems singular to note engraved on the monumental marble which adorns this beautiful place, the names of leading opponents who now rest from the struggle within the hallowed spot they once dreaded as subversive of what they conceived the holy instincts of civilized man. Mr. John Jay Smith must feel that in the successful establishment of this idea in Philadelphia, he has "fought the good fight," but he has not "finished his course," for year by year he adds to the good work,—not only by his

example followed by others in the numerous cemeteries about the city, but by adding to the extent of his own dominions. A recent addition has been made west of the Schuylkill, which for beauty, rivals the palisades of the Hudson, and makes the area over one hundred acres.

In all new enterprises, no matter how superior the genius may be which conducts it, there will be many matters of detail adopted which will bear improvement. The thirty-four years' experience gained at Laurel Hill, must be of great value. Cemeteries are now essential to every town, and indeed to almost every distinct class of society in all large cities, and if the honored founder of this great success, now approaching his three score years and ten, could find time in the twilight of life, to pen for those who come after him his ideas of cemetery management, it would be a valued legacy to his countrymen.

Certainly there are some prominent errors which it will profit all similar enterprises to avoid, and one of these is the planting of trees which will attain a large size in time, near land to be devoted to interments. Mr. Smith was, as the Editor of *Michaux's Sylva*, the "*Horticulturist*" &c, might well be supposed to be an earnest lover of rare and beautiful trees. Nothing therefore could be more natural than that he should combine this love of arboriculture with his cemetery planting. Hence, at one time, almost all the most beautiful hardy trees found a home in these grounds. Magnolias of all kinds from the *M. grandiflora* of the South, to the "Yulan" of China and *Purpurea* of the East Indies; the "Yellow Wood" of Kentucky, and the "Ginkgo" of Japan—these and similar varieties drew as to a Mecca, tree worshippers from many a distant land. But the cemetery grew and became fashionable. Lots for which hundreds of dollars were looked to, came to be worth thousands, and to such people as own these choice places what is a "mere tree" which grew without cost, to the dash and grandeur of a monument in which every granite block was cemented with a hundred dollar bill? Besides they shaded the lot, and the glaring whiteness of the sepulchral stones became green with lichens and mosses which grew thereon? Thus one after another the green spirit of nature has had to flee to the wild woods,—tree after tree has had to fall before the woodman's axe, and the heartless behests of fashionable folly left to rule over even what once we might truthfully call the classic shades of the dead. But it was

no easy matter to take down these trees. Felled in the usual way, there would be sad havoc amongst the monumental marble. Piece by piece the branches must be removed, and gently lowered with ropes, until the total cost of taking away a tree often rolls up a bill equal to the price of a good lot.

True, many trees of rare interest remain here yet. The arboricultural love of the founder of the cemetery, cannot always be conquered, even though the most tempting allurements are thrown in his way. But he cannot live forever, and those who come after him may not have his moral strength. Indeed we may say at once, that the idea of uniting arboriculture with practical cemetery work is a decided failure, and as will be found to be the planting of large trees of any kind. When the grounds are new and bare, large trees must be employed to give that luxuriance of growth which small trees never possess. But only those should be used which grow rapidly or are cheaply obtained, and which one can cut away before their size becomes objectionable, and without exciting so much regret, as the loss of a valuable tree always does.

In our next, we will give a list of the best things to be employed, from notes made of actual appearances at Laurel Hill.

ABOUT HONEYSUCKLES.

Long as one may be an exile from his native country, he never forgets some things which he believes to have lost, and which no new pleasures in any land can restore to him. We have often asked Englishmen about their losses, which lingering on their memories, the most attached them to their native land. The answer almost always is, "we miss the Lark's morning singing as he rises into the sky,—the long summer twilights cool and delightful; and the Honeysuckles and Pink Daily Roses, which after struggling together, bloomed at length in fragrant peace over every cottage door."

If some of these Englishmen had been with us in a ride through Vineland recently, and could for a moment forget the sweet songs of the singing birds; and his long evening walks through fragrant fields and along hedgerows sweet with the Hawthorn's blossoms, he might have fancied himself again in the Old World, so far as Roses and Honeysuckles would go. Certainly of the latter attractions, we never saw anything more

ripe for admiration. The Sweet Belgian which so often makes a delicate stunted growth, was growing with the luxuriance of hop vines, and flowering with the abundance of beautiful stars on a quiet night.

We cannot but wish that these beautiful vines were more common. To sit under ones own Fig tree might have been the perfection of pleasure in an age when what one should eat or drink, or with what one should be clothed, were the all engrossing questions of life. But in these days, when we have more senses to please than they had when the introduction of labor saving machinery has made a living easily possible for all; it is one's own fault if he has not his own vine and fruit tree. Our wishes go beyond these. Let him sit under his own arbor shaded by his Rose and Honeysuckle, and he will know a joy of which the old unfortunates of ages past never dreamed,—and a joy he will rather lose half his fruit crop than dispense with. For money will buy fruit, but the charming grace of the twining vines, and the delicious fragrance their abundant blossoms breathe around, no wealth can buy,—nothing but ones own hand in sympathy with nature can supply. It was a good wish which prompted the effort to make two blades of grass grow where only one grew before. We could better wish our name connected with the desire that there might be a Honeysuckle twined over every cottage window in the land.

A few hints on Honeysuckles may not be unacceptable. There are two classes, those which climb and those which make bushes. The last is well known in its representatives the Tartarian and Fly Honeysuckles. Some botanists have endeavored to separate the two, calling the last *Loniceras*, and the climbers *Caprifoliums*, but there are really no differences between them. There is one peculiarity common to both, and which we believe no other genus of plants possess.

The writer of this, in a paper read before the last meeting of the American Association for the Advancement of Science, called more particular attention than had heretofore been given to the fact that many plants have a series of axillary buds one above another, but the upper one always the largest. In the *Loniceras* this rule is reversed. There is a series of from one to five buds,—but here the lowest is the strongest. *Caprifoliums* and *Loniceras* alike have this characteristic.

We are of course speaking of the *Caprifolium*

or climbing class as Honeysuckles. The one of the English cottages is the *L. Periclymenum*; it grows wild through most of the English woods. It is rarely found in American gardens, chiefly we believe, because the one known as the Belgian is sweeter, and the deeper purple shading mixed with the white makes it more showy. It does not however grow as vigorously, and is not as well adapted for covering large trellises. Magneville's Honeysuckle is also a variety of this one with larger flowers and earlier than the Belgian, and with a growth equal to the Wild English, but with flowers scarcely as sweet.

In England, their Honeysuckle is popularly termed *Woodbine*. Our people have given this name to the Chinese *L. flexuosa*. This is the one with a reddish tint on the under surface of the leaves, and the young stems with a deep brown tint. The flowers are white turning to rose, and the leaves to a considerable extent evergreen. It is very sweet, and a good thing to plant with the view of running along the eaves of a piazza, or up and over trees. Then there are two excellent varieties of *Lonicera japonica* in cultivation,—the one known as *L. brachybotria* and the other as *L. Halliana*, both garden names. The latter is very much like the former in habit, except that the stem and leaves are pale and without any tint of purple or brown. The latter has shining leaves and more delicate shoots, and possesses a more creeping habit, which beautifully fits it to cover ground in places where it is too shady for grass to grow. The flowers of these two are exactly alike, coming out white and changing to yellow, and also as sweet as any flower can be.

America is also the home of a class of Honeysuckles, which have far more beauty than those of Europe and Asia, but have no fragrance. The two most generally seen in culture are the Red Coral and the Yellow Coral. The Red grows wild in Pennsylvania and other northern States; the Yellow is not found often, if at all north of the Potomac. They are both evergreen when not exposed to too warm a sun in winter. And here we come to a point worth noting in the culture of Honeysuckles, namely, not to put them in too sunny a place. They grow naturally creeping amongst the under-brush of the woods, climbing over low bushes,—not as in the case we recently noticed of the Rhododendron, which grows in shade because it can't help itself,—but here actually from choice and by preference. A

partially shaded and rich soil is every way best for them.

All the Honeysuckles are very easily propagated from cuttings taken off in the fall and planted, and covered with some material till spring to keep the frost from heaving them out.

DREER'S SEED FARM.

During a hurried trip through parts of New Jersey recently, we stopped a few moments at Dreer's seed farm at Riverton, on the Delaware River. We were pleased to see so many evidences of prosperity. The grounds embraced about 100 acres, much of this was out in flower and root crops. Of *Gladiolus* especially there were many thousand. One bed of some hundreds contained the old purple Byzantine variety, which in addition to the difference in color from the popular kinds, has the merit of being quite hardy. There were immense quantities of Pansies, most of them marked with their

separate colors, so as to sell them in separate lots. The Peony was also grown in great abundance; but we missed the deep double crimson we all admired so much around old fashioned country homes. We think it would sell if some florist would resurrect it from oblivion's grave. The *P. fragrans*, sweet as a rose, was here abundantly, to mock those who think a Peony only pretty to look at, and a kind called *fulgens* not very double, but peculiarly striking from its deep flame-colored flowers, were largely grown.

Largely in the bouquet business, Mr. Dreer has also here houses to accommodate this trade. There were nine in all, about one hundred feet long, and set together after the plan now so popular. There were not much in them at this season, but we noted how pretty a plant is the variegated *Hydrangea* for decorating partially shaded places in summer time. We have called attention to this pretty plant in past volumes; but it has not had the attention it deserves. The following is a sketch of one:



We find here also, they are getting up a stock of the two *Echeverias*, *metallica* and *secunda*. These have been much used in England for summer decorative gardening, and will do still better here where our hot summers are still more favorable to succulents. The leaves look something in shape like what was known in old gardens as the "House Leek." We notice also here as elsewhere, attention is being given to the new *Clematises* which are amongst the handsomest of flowering vines. Here also, as in our own

case, a year or so ago, they had received "right from 'head quarters'" was *Clematis Jackmanii* which was not *Jackmanii*. The real kind is of a vivid purple, and not light as we were led to describe it.

Fuchsias were here in large quantities, most of them new. But really there is no longer much novelty among new Fuchsias. One however, which we saw among these called "Marksmen," was worthy of a much better fate than the rest.

Of the new Ivy Geraniums, we must say a good word. This class of Geraniums will become much more sought after, popular though they have often been. For many years there were but white and rose,—now there are many distinct colors. They are adapted to so many different uses. For rockeries, vases, basket plants, or as trailers over beds like Verbenas, they are especially good; and then they do not object to our climate as so many popular English things do.

Of bedding Geraniums and Coleus, there is here the numerous varieties now so common. They are in fact too numerous. We shall have to take the whole season to look about us to pick out a dozen of the best before recommending the balance to be left out in the cold next winter.

Out from the flowers into the fruit grounds, we found many varieties of strawberries under trial. Triumph of America, Nicanor, Colfax, Jucunda, Philadelphia, Stinger and other scarce kinds were here. No especial culture is given them, and perhaps it is not fair to speak of relative merits under such circumstances. All we can say is, that under this let alone, as you please sort of culture, Brooklyn Scarlet behaved very well, and Agriculturist did no disgrace to the parties who originally sent it out.

SCRAPS AND QUERIES.

PEAR TREES IN GRASS.—J. H. S., A Warrenton, Va., Subscriber, says about Pear trees in grass: "The war gave me a wrinkle I didn't know before. No fences; no cultivation; and in the country grass will grow. So my trees were in grass, and are still in grass, and I intend to leave them in grass, as long as I get the Pears I do."

BUDDING APPLES AND PEARS.—S. Bellevue, Utah, asks: "Whether best to bud or graft the Pear on Quince, and the Apple on the Paradise?" [The former is the most generally practiced, and probably, all things considered, the best.]

THE CURCULIO.

We give to day a paper in our original columns, sent us by the gentleman whose name it bears, and which has also been extensively published in the West, where it has created great interest.

There seems to be not the slightest doubt but that the Curculio have been caught in the "manner and form as aforesaid." At the same time, it would seem to show habits in the insect at variance with the plan of shaking adopted by various growers. If they are in trees during day, they will not take shelter under chips and corn cobs. Yet it is clear that both of these classes of curculio catchers are right, for we have the substantial evidence thereof. The probability is, that in different times during the same season, the insects have different habits, and by pursuing both systematically, we may keep this pest in check.

It is very remarkable that this plan was long known, and told in the *Rural New Yorker*. It is quite possible that the experience of the lady who gave it was "pooh-poohed" by some who supposed what they did not know was amongst the impossibilities. It will be a lesson for all of us not to neglect facts offered us however strange they may seem,—but to prove all things if we would hold to that which is good.

PROPAGATING JAPAN LILIES.—S. Bellevue, Utah, inquires: "How to propagate Japan Lilies?" [The scales from mature roots are carefully separated, and planted barely under the surface of the soil; and each scale produces a bulb,—or each old bulb may be treated as recommended for Hyacinths in the present number.]

PAULOWNIA IMPERIALIS.—R. A., Detroit, "Some attention has been given to this in the West as a fine flowering tree. Is it hardy enough for this region?" [It is hardy wherever there is great summer heat. In cool summer climates the wood gets easily killed in winter. Most like

ly it would be hardy at Detroit, though the immature parts of the branches might suffer.

FUNGOID THEORY OF DISEASES.—This theory has met with general acceptance of late years. The idea is that though diseases may originate without the agency of fungus, yet after having once started, the spores will attach themselves and breed disease in the healthiest subjects. Mr. Geo. Parmelee, of Old Mission, Mich., one of the most intelligent of Western Fruit growers, elaborately attacks this theory in the *Western Rural*. The chief portion of the article is devoted to arguing the improbability of this theory. Mr. P. asks does bread mould more than it did years ago? Yet shows that Grapes rot more than they did at one time. He takes it for granted that there are deleterious fungoid spores in California, though there is not much disease there,—also he assumes that there are spores of the potato fungus in Maine and Nova Scotia, although there is no potato rot,—that rot never appears when the barometer is low,—that it is always less in orchards poorly cultivated,—that it never appears in the early stages of growth,—that rot never shows itself when there is not a rapid growth,—that warm rich valleys exhibit the disease most abundantly,—and that in the poor grape soils of Europe there is most freedom from disease.

Of course in getting at a knowledge of the cause of disease, much depends on the uniformity of the facts produced, and then, granting their universality, whether the trouble complained of might not exist in spite of all those facts. For instance must a tree be necessarily unhealthy because it does not grow? Or because the barometer is high or the weather warm? Might we not as well say that these conditions were favorable to the development of fungoid spores, as well as to say that they were unfavorable to health. We make these suggestions not to dispute the correctness of Mr. Parmelee's conclusions, but only to caution those who are studying this difficult subject, to be very sure of their facts, and that their application is undoubted.

PLANTS FROM UTAH.—S., Kane Co., Utah, Sends some very interesting plants for name. Some of the specimens are good, others only a single flower or flower-pike. The plants of this region are little known, and good specimens, that is with leaves as well as flowers, should be

sent in order to enable us to give the names with certainty.

No. 2. Is *Pentstemon acuminatus*. 3. *Purshia tridentata*, the first flowering specimen we ever saw, and evidently a shrub well worthy of introduction to our ornamental grounds. 4. *Baileya*, probably *B. multi radiata*, but cannot tell from a single flower. 5. *Berberis Fremontii*, this also ought to make a beautiful low evergreen shrub for cultivation. 6. *Audibertia incana*, this pretty low shrub is scarce even in herbariums, and good specimens would be very desirable. 7. *Castilleja pallida*. 8. *Ephedra syphillica*. 9. *Pentstemon glaber*. 10. *P. Torrreyi*, this is far more beautiful than the *P. (Chelone) barbatus*, well known in cultivation. 11. *Yucca angustifolia*. 12. Too small, but probably *Namahispida*. 13. *Falbugia paradoxa*. There was no No. 1 in the lot. Send more of other things.

CALLOUSING OF ROSES.—Tyro, Cincinnati, O. "Can you tell me how to strike Roses from cuttings? We put in several last winter; they calloused beautifully, and therefore several gardeners told me they ought to root; but from some inexplicable cause they afterwards died away. It a sore disappointment to us, as we hoped to have a nice lot of our own growth; not that we don't want to buy, if necessary, but it is such a pleasure to see the works of our own hand thrive and do well."

[Roses are very hard to raise by the inexperienced. As for the "callousing," that is an entirely distinct process from rooting, and has no more connection with it than the pushing out of the leaf buds from the cutting; indeed, just the same, it shows that there is some vitality about, and that is all. Roots usually come out up and down the stem any where and independently of the calloused part. Indeed it is quite likely that there is more danger to a cutting about the time it is callousing than at any other time, as it expends its stored up force in forming the cellular matter of the callous, and thus has so much less to form roots.

The callous in fact is rather a reproductive than a nutritious effort, an attempt to make a bud rather than a root. We see this often in Geraniums, a thick callousy matter frequently forms on the roots, and after awhile pushes into stems. So also in propagating Gloxinias, Coleus, and similar things from leaves; the callous in

variably develops into a bud,—no stem growth indeed is formed except through the callous.

We have entered into this matter more minutely than your inquiry would seem to demand; because a great number of excellent gardeners and scientific men, seem to have imbibed the notion as your friends have, that there is some relationship between callousing and rooting. It is one of those lessons of the past generation, which the coming man in the horticultural field will have "to learn over again."

As to propagating Roses; here is the principle:—Light influences the formation of leaves; *darkness roots*. Wood that has been growing in the full light, is less prepared to form roots than that which was developed in partial shade. Hence Rose cuttings which have been developed in the full sun, seldom furnish wood that will root well. Plants for propagation must be grown in a partially shaded place,—such wood will "strike like willows."

HEARTH AND HOME AGAIN.—This nominally respectable Journal has not apologized to its readers for the outrage on decency while discussing a horticultural question to which we recently called its attention. We take it for granted however, that it is somewhat ashamed of itself, for it has gone back to the same subject, and has tried to write the second time in a better spirit than the first. It admits now that it "does find the characteristics described by him," notwithstanding the challenge of \$500 to the sharp-eyed boys, but denies that these are permanent. Seedlings, it says, have an increased size of fruit for two or three years, then they seem to recede to their original size. Every variety it ever had ultimately proved an *exact copy of the original*. Ten years ago, it received the *Galande* but soon no one could tell it from old monthly Alpine. This is a fair statement of what the *Hearth and Home* says.

It is to be regretted that Mr. Downing did not make the acquaintance of this writer before he got out his new edition last year. He says *Galand* is distinct, and notes particularly its "dark red color." Another variety, he says, is "remarkable" amongst Alpines for "its reddish brown color." The Red Wood Alpine he distinguishes by "roundish ovate fruit," and the Monthly Red, by its "long conical form,"—besides these he gives five other varieties.

If the writer of this paragraph in *Hearth and*

Home knew "soon after" "ten years ago," it was cruel in him to let Mr. Downing make this terrible mistake last year; and still more astounding that he should reserve the vials of his wrath for Mr. Meehan, although he must have read this in Downing a year before. But we suppose this article must not be looked into too deeply, as it is no doubt intended to cover up a little the disgrace of the other one, and it may be a reflection on our "tender mercies," if we show too plainly that the garment has a number of ragged holes in it.

APPLES VARYING FROM SEEDS.—A correspondent asks why an apple or Pear grown from seed will not produce the same kind of fruit as its parent? All we can say is, that nobody knows.

THE LANDRETHS.—Few persons have more deserved prosperity than the old Philadelphia seed firm of D. Landreth & Sons. Wherever their name is known it is synonymous with everything honorable and fair. Their store was one of the finest in that city. They have recently absorbed the neighboring one, and taken it into their old establishment. This now make one immense five storied building of great beauty, all of which they occupy. It is probably now the largest seed store in the United States.

THAT BIG LEMON BEAT.—"In the *Monthly* for the present month, June, you invite any one who can beat your big Lemon of 14 ounces. I have a Lemon tree under my care which has produced fruit one single specimen weighing 15½ ounces and several of them between 14 and 15 ounces. There was on the tree at the time 150 Lemons in various stages of growth. It may be of some interest to give the dimensions of the tree, it fills a small house 14 feet wide, forming a circle on one end so that there is barely room to get round it, it has been in the present tub about ten years. The tub is 5 feet in diameter, and has about 80 fruits at present in all stages of growth. It is believed to be the finest Lemon tree in New England.—GEO. CRUICKSHANKS, Gardener to J. C. Whitin, Esq., *Whitinsville, Mass.*

CHERRY STOCKS.—*S.* inquires what varieties of cherry do well grafted on Mazzard Cherry? Any and all kinds do equally well on this stock. There is no difference, as there is with the Pear on Quince.

SEX IN PLANTS.—Probably few ideas excited more attention of late years than those contained in Mr. Meehan's paper on sex in plants, read before the American Association for the advancement of science at Salem, last year, and which was published entire subsequently in the *Gardener's Monthly*. The facts brought forward tended to show, that when the plant was in the reproductive condition, it was the greatest flow of vigor or vitality produced the female, and a weakened flow the male. The doctrine was so novel—so contrary to all preconceived notions, that it was not surprising that Professors Agazzis, Cope, and other eminent men should have suggested that extreme caution should be exercised in generalizing from those facts. The most remarkable thing is, that rigid scrutiny of the subject has placed the matter in an undisturbed position. Each observer is continually adding to the stock of facts, and no fact has been brought up to tell another story. Dr. Masters in reviewing the paper, added new facts from the Palm family; and more recently gives the following paragraph also confirming the theory:

At the last meeting of the Royal Irish Academy Dr. MOORE, of Glasnevin, read a paper on the MORPHOLOGY of the FLOWERS in some DIÆCIOUS PLANTS. A raceme of inflorescence of *Nepenthes distillatoria* was shown, on which the flowers produced on the lower half of the raceme were pseudo-hermaphrodite, having well developed ovaries which were surrounded at their bases with imperfect stamens. The flowers on the upper half of same raceme were all staminate or male. It was mentioned that the only difference observable between the ovaries of the pseudo-hermaphrodite flowers and those usually produced on female plants was, that the valves did not adhere firmly together, but stood slightly apart, somewhat as they do after dehiscence. Pollen from the well developed male flowers was scattered over the stigmas of the female flowers, and some of them were touched with the staminate organs which surrounded their bases, but in neither case did perfected seeds result. A male plant of *Carica Papaya* was also shown, on which was a well developed fruit, all the other flowers on it being males. In both of these instances the female flowers were the first which had expanded on the inflorescences, where the greatest vigor might be supposed to be present; and, judging from them and some other analogous cases which were mentioned, Dr. MOORE was induced to believe that vigor and healthiness in plants is more conducive to the female line by vital force than to the male.

It will be seen that the concluding sentence of this paragraph is almost identical even in language with the concluding idea in Meehan's paper.

The relationship between the author of that paper and the editor of this Journal prevents us

from saying much about this theory without a seeming egotism. But justice to our readers, which requires us to keep them posted on all advanced horticultural ideas, seemed to demand that we should let them know how the idea was advancing.

If the same ideas shall be found to hold outside of the vegetable kingdom, our agriculturists will have to throw Prof. Theory's story over, and learn again.

THE DIONÆA ARTICLE.—In our desire to "engross all the botanical news of the country," we give following entire from *Hearth and Home*, of June 28th:

GARDENER'S MONTHLY, AND THE DIONÆA MUSCIPULA.—Our agreeable green-covered contemporary of Philadelphia indulges in the pleasantry of saying (in its May number) that the article on the *Dionæa Muscipula* in *Hearth and Home* for August 28th, 1869, is but a re-vamping of a paper, in some previous issue of the *Gardener's Monthly* which is counted the sole original source of information on that subject.

In mitigation of the offence charged, we beg to say that the article alluded to was communicated by the well-known botanist, Mr. James Hogg, who was put in possession of the facts by Dr. Torrey, who, in turn, was informed by Mr. Canby himself of the particular facts relating to the *Dionæa muscipula*.

In short—though our collaborator, Mr. Hogg, ought to have been a more attentive reader of the *Gardener's Monthly*—we think Dr. Meehan is over zealous in supposing that his pleasant magazine engrosses all the botanical news of the country.

Philadelphia is a stately city, and its *Gardener's Monthly* an august authority; but a kind Providence vouchsafes to us in New York an inquiring disposition and we are kept (extraordinary as it may seem in Chestnut Street) in more or less constant communication with the best sources of information. That we should happen upon and such information—of value—not already accepted or digested by our Philadelphia contemporary is perhaps hardly conceivable; that we should happen upon some items of value from time to time derived from other sources than the *Monthly*, is surely possible—if not probable; that we should engross such items for the benefit of our readers, without fatiguing inquiry as to the chances of their having already received the imprimatur of our green-covered friend—unless the scientist in him out-tops the Christian—will surely compassionate.

The long article referred to in *Hearth and Home*, follows regularly the ideas in Mr. Canby's article in the *Gardener's Monthly*, and whole paragraphs are in the same language. We therefore cannot accept the apology that it was derived verbally from Dr. Torrey. No wonder our neighbor exhibits such anxiety to raise other issues, "august authority," "kind Providence," "New York," "Philadelphia," "sources of information," "scientific christian," and all these other evidences of the truthfulness of its position,

we gracefully resign in its favor, as we have similarly done on former occasions. The only thing which "seemed extraordinary on Chestnut Street" was that a bet of \$500 was not found amongst the other proofs of our "fireside and family" friend.

For the benefit of our other contemporaries we may add that in our twelve years existence we have never made one complaint about ideas or articles being taken from us without credit, though it has often been done. The uniform kindness and courtesy we have received from the many scores with which we exchange,—two only excepted,—has been sufficient evidence to us that it was accidental. Even in the present case, one of the worst kind because attempted to be covered up—we did not notice it for months, and should not then but for this very paper claiming as "the sole original source of information," a very trifling idea we copied from the *Ohio Farmer*.

KNOCKING THE CURCULIO.—*J. H., Athens Ohio*, sends us the following good note:

As it is soon to be curculio time, I wish to state a few things that are not new but generally forgotten.

Whoever will with perseverance knock their plum trees in a proper manner, will save the plums. But what is a proper manner? I have often seen persons take hold of the tree with their hands and shake desperately. I have more frequently seen persons knock with an axe on the bark of the tree. Now the fact is the right way is to drive a pretty large nail into the tree to strike on, then one or two strokes will be enough. The jar is very much more stunning and the sound is also sudden and disagreeable to the insect. And then the nail will damage the tree very little, while the other plan of striking directly on the tree is ruinous to it. It will also require very hard pounding and a good deal of it to bring them down. We know that some have recommended a cushion or leather to shield the tree. We only have to say that though this may shield the tree, so it does the "Turk" and defeats the effort. The question is often asked, will this knocking business really and effectually succeed? We say if done as above recommended, that it will without any doubt. The sheet should be in two parts, or two sheets rather, to lay on each side of the tree meeting in the center under the tree. They

should have a strip of light pine tacked to one edge for convenience. The operation should be nearly every morning for two or four weeks, as occasion may require. Some years more, some less. It will be easy to see what is necessary from their marks. I think this knocking is quicker and cheaper than any plan yet devised and it is certainly better."

BEST STRAWBERRY FOR FORCING.—*B., Fishkill, New York*. *Triomphe de Gand*, and *Agriculturist* are two good varieties for forcing. The profits of forced Strawberries depend on your market. In Philadelphia, D. W. Herstine simply puts hot bed sash over the plants in the ground, and gets them over a month before the earliest arrives from the South. He gets from \$1 to \$1 50 per quart, which we judge is good interest over cost.

OXALIS DEPPEI ROOTS.—*S.* has eight Roots, one of which has flower without rootleaves, the other root leaves and no flower stem. This is often the case with flowering roots. The flower stem is indeed made up of petioles of what should be root leaves. Whenever there is any tendency to a flower scape, and flowers are not desired, pick out the flower stem as it appears,—when the reverse is wished for, checking the supply of nutriment usually starts them.

GRAFTING.—*S. Bellevue, Kansas*, asks for a receipt making Trowbridge's grafting wax. This we believe is made up expressly by the manufacturer, who has never published the ingredients of which it is made. It is better than the common wax, which is made of about 4 parts rosin, 2 parts beeswax, and 1 part tallow, applied just warm.

We will try to answer the apple question next month, as at present we do not know what one the local name of "French Mealy" applies to.

MAGNIFICENT PEARS.—We received late in January from Mr. T. G. Yeoman's magnificent Beurre d'Anjou Pears, weighing half a pound each, and of the highest quality. We have been accustomed to concede size to the west, reserving to ourselves the palm for high flavor, but a few more instances like the recent success of Dr. Houghton, and these of Mr. Yeoman's will tell another tale.

GRAPE VINE TENDRILS.—*J. B., Astoria, L. I.*—"Noticing the *Gardener's Monthly* to give prominence to the more intellectual departments of gardening, I have ventured to ask you if it is decided whether a tendril of a grape vine is a branch or a bunch. The subject was discussed amongst some friends recently, several of whom were considered botanists, but they did not seem to agree themselves about it."

[A tendril is neither a bunch nor a branch in the sense in which you seem to understand it, but an epitome of the whole plant. It is really an abortive shoot, in which are all the elements of leaves, branches and flowers. The whole of these things go to make up a grape tendril, and hence at times we have leaves and flowers appearing on it. A bunch of grapes is only a tendril in a more highly organized state; or in other words a bunch of grapes is a branch in the farthest degree removed from its typical condition.]

LAWN MOWERS.—*J. F., Rochester, Mass.*, asks: "As I am an entire stranger to you, but, as I see you speak of Lawn Mowers in your *Monthly*, I have taken the liberty of asking your advice about the best article of the sort that you know of. I have about two acres of short grass to cut, and as I have plenty of other work to do I am hard pushed with cutting the grass sometimes. I have got one of Hill's small Mowers with revolving cutter, but it is a plaguy thing to run. What I want is a machine to do the work easily and well—and to cut 20 or 24 in swathe. If you will please let me know where I can get a good machine you will much oblige me—and if you are ever in the neighborhood of New Bedford, I should be happy to see you."

[The Philadelphia Lawn Mower will we think, meet your wants. See advertisement.]

WIGWAM PLANT.—*Constant Reader, Lancaster Co., Pa.* "I send you leaves of a coarse grass from the farm of a friend of mine near Altoona, Pa. My friend says there is but one patch of it on the farm, and that is on the site of what was once an Indian Wigwam, and the plant is thus supposed to have been introduced by the Indians. Though ploughed up and hoed it never gets killed out, and yet strange to say it does not spread much beyond the boundaries which enclosed it years ago, what is it?"

[This is the *Hemarocallis fulva*, an European

plant of the Lily family. We suspect some Dutchman lived in that wigwam after the Indian left it. It is a very popular flower in the gardens of the Pennsylvania Germans, and deservedly.]

GENEVA HORTICULTURAL SOCIETY.—**BLISS STRAWBERRY SHOW.**—We are sorry to receive information too late to serve our horticultural friends. This often happens. We should have been glad to notice both of the above worthy objects, if the news had come in time. They were held the last week in June.

PERRY'S SCARIFIER.—With all the improvements in horse hoes and weeders we have not found much of real value for some years until now. We have had this in use this summer almost daily, and it is undoubtedly the best. Our ground is somewhat stony, and Mr. Perry's cast iron brackets are hardly strong enough. This is the only weak point we find. The rest is perfection.

POMOLOGICAL EXCURSIONISTS.—*Col. Wilder, Mr. Downing, Mr. Ellwanger, and Mr. Barry* left Rochester for a two month's tour through California, on the 11th of June.

The *Alta Californian*, of June 20, says a party left San Francisco to welcome them on the Sierra Nevadas.

THE MONTHLY ON THE PACIFIC.—A correspondent from California writes: "I met with considerable success the past season in my endeavors to extend your *Gardener's Monthly*, but not to the extent I hoped for; for there is an existent impression that no horticultural magazine from the Eastern States can give information adapted to our climate."

[Our correspondent should remind his friends, that our object is not to teach gardening; but to record and explain all new ideas or discoveries in gardening made in any part of the world. If for instance we tell in the United States how they grow Hyacinths in Holland, it is not that we ever expect people here to raise these dutch bulbs; but that they may apply this knowledge to other things they do wish to raise. Our aim is to make people who already know something of gardening, intelligent. In this general intelligence they will find profit.]

THE "AUTHORITY" ON STRAWBERRIES.—Our usually well informed contemporary the *Rural New Yorker*, must have fallen into a serious error about the article we copied in our last from *Hearth and Home*. The *Rural* puts the disgrace of it on Mr. A. S. Fuller. It so happens that the editor of the *Monthly* was invited by Mr. Fuller to receive the plants from him and test them, which he did as impartially as he knew how. It is barely possible that Mr. F. might write scurrilously of one who had always treated him courteously; but he certainly would not so stultify himself as to pen such a paragraph against the "authority" of his own choosing. Let the *Rural New Yorker* do Mr. Fuller justice.

SPORT IN PELARGONIUM.—We have from Mr. Such a specimen of a Pelargonium in which a light colored variety has become beautifully striped and blotched with red. It is not unusual

to see these freaks in the Balsam, Dahlia, and even the Chrysanthemum; but it is not usual here.

INFALLIBILITY.—The *American Agriculturist* seems pining for some of that Strawberry Short Cake. It does not like to see *Hearth and Home* getting it all. Good children are very apt to get overlooked,—we have to pacify those which kick. The *Agriculturist* when it does differ, knows how to do so courteously. Still it is remarkable that when the *Gardener's Monthly* said "From these facts there is no doubt of the difference in the two Strawberries," that should be "asserting an infallibility of judgment" highly reprehensible,—but when the *Agriculturist* said emphatically, "It is a humbug and a swindle," this is to be taken as a harmless joke. Is it possible that the first commandment was issued for the especial benefit of one or two journals alone? We are not "asserting infallibility" now, but simply asking for information.

BOOKS, CATALOGUES, &C.

PEACH CULTURE. By J. Alex. Fulton, Published by O. Judd & Co., New York.

Peach culture is so important and so heavy a branch of fruit growing, that it is somewhat surprising that no one has written a book about it till now. Mr. Fulton brings to the work great advantages. A gentleman of means and culture; a resident of one of the largest and best peach districts in the Union; a peach grower of large experience and observation. The publishers have been fortunate in this stage of their undertaking.

In the execution of this task, the author has done the subject full justice. Every thing relating to culture and marketing the crop is touched on and handled in a clear and masterly manner. Some might have added more and others less, and others given different opinions in some question, as is clear from the discussions at meetings and articles we read in the papers; but we are sure no one man could have given us a better idea of peach growing and peach knowledge, as it is, than Mr. Fulton has done.

A SIMPLE FLOWER GARDEN FOR COUNTRY HOME. By Charles Barnard. Published by Loring, Boston.

When my "Ten Rod Farm" was published, and the public sought to be impressed with the

idea that it could not possibly be written by a lady, we were charged with wanting to be very wise. It is now announced that the author of this, wrote that also.

Our objection to that book was, that it was not fair to pretend that things which were only reasonable, should be given as actual facts accomplished. We have no objection to romances when given as romances. The more they look like truth the better; and many very useful lessons can be taught in this way, not to such an extent as in a "ten rod farm," but still considerably. Mr. Barnard insists that what he now writes, was done on "two narrow borders." We think these pretensions mar the real value of the book, which is otherwise very interesting, and will much interest ladies for whom it is chiefly intended.

THE MODERN JOB. By Henry Peterson, Philadelphia.

This is a poem after the manner of Bailey's *Festus*, in which the philosophy that "all things are wisely ordered for the best" is the ruling idea. Those who are fond of metaphysical inquiries, will find it very interesting reading.

THE MEN WHO ADVERTISE.

Is a very handsome volume, issued by Rowell & Co., New York, filled with information of great value to all who know or would know the benefit of advertising.

THE RURAL CAROLINIAN. Published at Charleston, South Carolina.

We noticed this at its first introduction to the public. Very few of the newer journals equal it in beauty or good management. Indeed of all the

magazines which make agriculture a leading feature, we believe this is gotten up in the best style, whether issued in the north or south. It is evidently prospering, and well deserves it.

TRANSACTIONS OF WORCESTER COUNTY (MASS.) HORTICULTURAL SOCIETY. From E. W. Lincoln, Secretary.

Shows a very prosperous condition of things in this useful Society.

NEW AND RARE FRUITS.

SHERMAN SWEET APPLE.—According to the statement of H. T. Brooks, this apple originated in Middlebury, Wyoming Co., N. Y., about forty years ago. Tree is vigorous in growth, a good bearer, and the fruit is in eating from November to January, inclusive. It is of medium size, roundish oblate at the calyx end resembling the Rhode Island Greening, greenish yellow or yellowish green, with a bronzed blush cheek in the sun, conspicuous white specks in the blush, and suffused dark specks elsewhere; calyx closed; basin broad, open rather deep; stem long, slender, set with a broad, very shallow depression; flesh yellowish white, half tender, crisp, juicy, sweet, very good.—*Rural New Yorker*.

A WHITE NORTHERN SPY.—At a meeting of the State Pomological Society of Michigan, May 3d, it is announced that Henry Holt, Cascade, Mich., exhibited a "Northern Spy entirely white;" also Wagener, Holt's Seedling, Spitzenberg, Jonathan, Yellow Belleflower, Green Winter Sweet and Rambo were exhibited at that date in fair order.

RELiance AND NORTHERN BLUSH APPLE.—I am indebted to G. N. Smith, (Berlin, Wisconsin,) for several specimens of the Reliance and Northern Blush apples, new seedling varieties, that it will be remembered, were lately shown at one of the Wisconsin Horticultural meetings. The claim mainly made in favor of these seedlings is that of hardihood in the trees, they being the best two in an orchard originally planted with seedlings, and out of which more than one-

half have died from the severity of climate, while these have withstood all changes and yearly produced fruit.

THE RELIANCE

is of medium size, conical, broad and flat at stem end, some specimens a little oblique, (see outlines,) slightly ribbed, or with broad shallow furrows, as with most of the class of Gilliflowers and Colvilles; color light, pale yellow ground, with broken stripes and shades of red on sunny side; when fully exposed, the red is deepened and maintains its color, especially toward the blossom end; calyx nearly closed, with segments divided and slightly recurved or reflexed at end; basin deep, broad open, with many small, sharp furrows: stem short; cavity deep and open, with slight greenish russet at base; flesh white, moderately fine grained, mild sub-acid, tender, moderately juicy, good to very good; core rather open at center, with long capsules; seeds plump, dark brown; season, January to March.

Mr. Smith writes:—"The man who planted the seed and set out the trees is known here as truthful. He never purchased a tree or set out an orchard except of his own growing from seed—a fact to which his two sons, one of whom is now owner of this old orchard can bear testimony. The orchard is entirely unprotected from westerly winds. I put these apples before the Society here in Wisconsin as possessing the qualities we most seek and need in our severe climate, viz:—perfect vigor, hardiness, productiveness and good quality for cooking and the dessert. They have not failed of a crop during the past six years, although the mercury ran down to 30° below zero once, and to 25° below twice during that time.

THE NORTHERN BLUSH.

Fruit of medium size, roundish oblate, irregular or furrowed, light, pale yellow ground, with a vermilion blush in the sun at stem end; stem short; cavity open, deep; calyx large for size of

fruit, half closed; basin broad, shallow, corrugated; flesh white, coarse, spongy, dry, hardly good; core medium; seeds brown, plump; season December.—F. R. ELLIOTT in *Rural New Yorker*.

NEW AND RARE PLANTS.

In a recent number of Van Houtte's *Flores de Serres*, are some beautiful figures of plants, of which the following will have an interest for Americans:

XANTHOCERAS SORBIFOLIA, a beautiful, hardy, Sapindaceous shrub of moderate size, with grey bark, imparipinnate leaves, and terminal racemes of largish, regular, five-petaled, white flowers, having a purple eye; this comes from China and Mongolia. M. Decaisne remarks that it will probably form, when fully grown, a small tree similar to the allied *Kœlreuteria*. The flowers appear with the young leaves, and the stain at the base of the petals passes from yellow to reddish brown, and then to violet-purple.

DESMODIUM PENDULIFLORUM, a hardy frutescent plant, springing up annually from the base, and producing long pendulent branches, and abundant racemes of reddish purple papilionaceous flowers from July onwards till late in autumn, and according to M. Van Houtte, one of the finest Japanese introductions of our time.

HYDRANGÆA STELLATA PROLIFERA, a very distinct form of *Hydrangæa*, and one which is very suitable for cultivation as a decorative plant; it has roundish ovate leaves, and large dense globose terminal cymes of pink double flowers, formed of numerous spreading elliptic oblong sepals, and was introduced to St. Petersburg by Maximowicz from Japan in 1865. M. Van Houtte describes it as very pretty, but a slow grower.

HEMEROCALLIS DISTICHA FLORE PLENA, reproduced from the first volume of the "Floral Magazine," a very showy herbaceous plant with large orange yellow flowers marked with flame-colored spots, and having the parts of the corolla about quadrupled as compared with the single or type form.

AZALEA INDICA MAXIMILIEN, a rather small-flowered particolored variety, with a ground color of pink, here and there striped with car-

mine, here and there edged with white, and according to the description given, inconstant; it was derived as a sport from the variety called *Reine des Belges*.

ANEMONE FLOWERED PETUNIAS.—A new class of *Petunias* has made its appearance in Europe, called the *Anemone flowered*. These are double. The outside corolla being as in the single *Petunia*; but in the center is a short tuft or "rosette formed of five small petals as in the garden *Anemone* or some *Camellias*. Mr Bull in his very interesting catalogue of new plants for 1870, thus speaks of them:

This new section is remarkable for the peculiarly attractive formation of the flowers, from the centre of each of which there is a projecting tuft of small florets, and these being frequently of diversified colors, produce a singular and pleasing effect.

ANIMATION, pure white, with the central petals mottled with crimson.

BRIGHTNESS, pure white, very prettily barred and blotched with deep rose; a fine flower.

CONSTANCE, pure white, with central petals of a deep violet crimson color.

EMBLEM, bright violet, veined and shaded with crimson; an attractive variety.

NEPTUNE, pure white, all the flower blotched with violet rose.

SYBIL, lavender, blotched with white, the whole of the flower reticulated and veined with purple; an exceedingly beautiful variety.

LEUCOCARPUS ALATUS.—An extremely useful plant for winter decoration. When well grown it is very ornamental, its long racemes of snowy fruits forming a beautiful contrast to those of the celebrated hybrid *Solanums*, and for which the *Leucocarpus* is a most suitable companion. The berries are large, pure white, and produced in great profusion.

DOMESTIC INTELLIGENCE.

PROFITS OF HORTICULTURE.—At a recent meeting of the Dayton (O.) Horticultural Society—one of the most useful Societies in the West, several gentlemen took part in the discussion of this subject. Amongst these were Messrs. Ohmer, Mumma, Acksteder and Wambaugh, all names of well known successful men.

The secrets of success were set down to be finding out what does well in ones soil, giving every attention to culture and marketing, with strict honesty in ones dealings, and no humbug, not trying more than could do well. One gentleman thought that the continual striving after excellence, was the one thing needful. If a man has this element in his nature, the others follow naturally after.

THE CHEROKEE ROSE.—The legend of the Cherokee Rose is as pretty as the flower itself. An Indian chief of the Seminole tribe, taken prisoner of war by his enemies, the Cherokees, and doomed to torture, fell so seriously ill, that it became necessary to wait for his restoration to health before committing him to the fire. And as he lay prostrated by disease in the cabin of the Cherokee warrior, the daughter of the latter, a young, dark faced maid was his nurse. She fell in love with the young chieftain, and wishing to save his life, urged him to escape; but he would not do so unless she would flee with him. She consented. Yet before they had gone far, impelled by soft regret at leaving her home, she asked leave of her lover to return, for the purpose of bearing away some memento of it. So retracing her footsteps, she broke a sprig of the white Rose which was climbing up the poles of her father's tent, and preserving it during her flight through the wilderness, planted it by the door of her new home among the Seminoles. And from that day this beautiful flower has always been known, between the capes of Florida and throughout the Southern States, by the name of the Cherokee Rose.

It is of rapid growth, and soon forms a hedge as dense as it is beautiful. It runs along the roadsides likewise, converting roads and fences into thick banks of leaves and flowers. It climbs to the tops of high trees, hanging its festoons among the branches, or letting them droop gracefully to the ground. In fact, this showy

wild flower, with its five white petals and centre of gold, imbedded as it is in so many brightly shining leaves of green, gives almost a bridal aspect to the spring landscape, and well nigh makes all the citizens' cottages look like homes of the poets.—*Horticulturist*.

FRUITS FOR KENTUCKY.—The last meeting of the Kentucky Horticultural Society recommended the following list for that State:

APPLES—SUMMER.

Early Harvest,	Carolina Red June,
Red Astrachan,	American Summer Pear-
Jersey Sweet,	main.

FALL.

Maiden's Blush,	Porter,
Frankfort Queen,	Lady Finger,
Penn. Red-Streak,	Roxbury Russett.

WINTER.

Lady Finger,	Hewes' Crab,
Rome Beauty,	Moore's Sweet,
Wine Sap,	Limber Twig,
Rawle's Janet,	Ben Davis, (or N. Y.)
Hall's Seedling,	Pippin. (incorrectly)
Lady Apple,	

PEARS—STANDARD

Bartlett,	Tyson,
Flemish Beauty,	Swan's Orange, (astrin-
Madeline,	gent)
White Doyenne,	Doyenne Boussock,
Buffum,	Julienne,
Glout Morceau,	Osband's Summer,
Seckel,	Lawrence,
Belle Lucrative,	Doyenne d'Ete.

DWARFS ON QUINCE.

Osband's Summer,	Louise Bonne de Jersey
Duchess d'Angouleme,	Buffum,
Glout Morceau,	Lawrence,
Tyson,	Seckel.
Beurre Giffard,	

PEACHES.

Early Tillotston,	Ward's Late Free,
Catharine,	Grand Admirable,
Brevoort Morris,	Grosse Mignone,
White Heath,	Red Rarieripe,
George IV,	Tippecanoe,
Early Newington,	Sidock's Late Free,
Heath Free,	Crawford's Late,
Lagrange,	Hopkinsville Free.
Vant Zant's Superb,	Cole's Early,
Hale's Early,	Old Mixon Free.
Columbia,	

GRAPES.

Delaware,	Ives' Seedling,
Catawba,	Hartford Prolific,
Concord,	Diana, or poor soils,
Norton's Virginia,	

FOREIGN INTELLIGENCE.

SELLING POLLEN for fertilizing purposes, at so much per packet by mail, is the latest horticultural idea in England.

NEW ENGLISH STRAWBERRIES.—These do not seem to have held their ground any more than American ones have here. At the leading Horticultural exhibitions we note that the old Keen's Seedling generally bears away the prize.

ROSE, PRINCESS CHRISTIAN. seems to be one of the most popular of new European Roses.

NEW WATER POT.—A new thing in water pots has appeared in England. There is no rose but the spout, which is pierced with holes, and indeed acts as a rose.

MANURE FOR CONIFERS.—A correspondent of the *London Journal of Horticulture* ridicules the once popular fancy that manure is a bad thing for Pine trees.

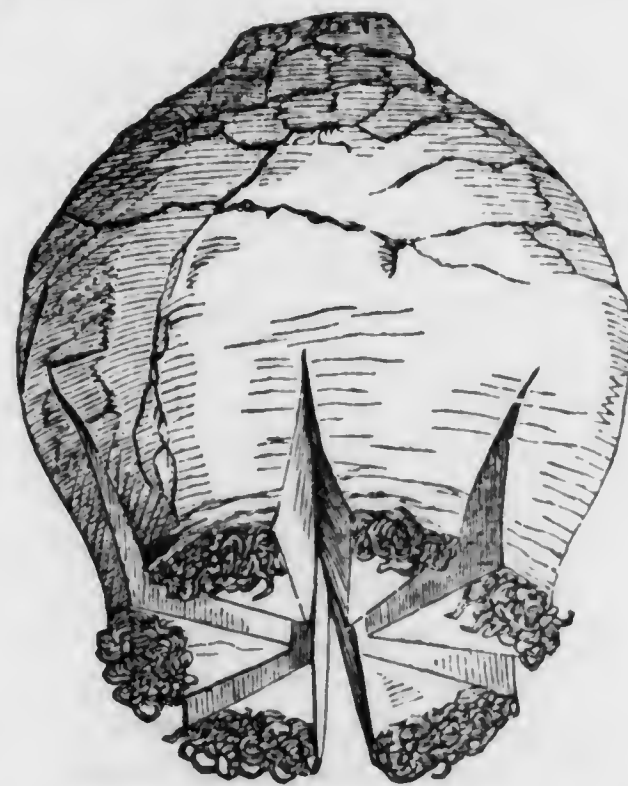
SMUT IN GRAIN.—Du Bary and Tulasnes have a memoir in a German work, *Pringsheems Journal*, on these parasites. It appears in some of the species they are formed as little globes, not threads, and that one is formed out of another as in a necklace. To the naked eye they appear as threads. The first productions are not small enough to enter the stomatas of the plant; but they produce secondary smaller ones, which get in, and then the destruction of the tissue commences. From movements observed it is suspected that even these smuts and rusts have separate sexes and cross fertilize as do other plants.

SPLIT SHOOTS UNITING.—The *Gardener's Chronicle* doubts whether a shoot slit horizontally through the pith, could be set together again so as to form a perfect union.

PROPAGATING THE HYACINTH.—The following account is from the *Dublin Gardener's Record*. Other bulbs may be increased in a similar way. It will afford useful hints to those not well versed in the mysteries of propagation:

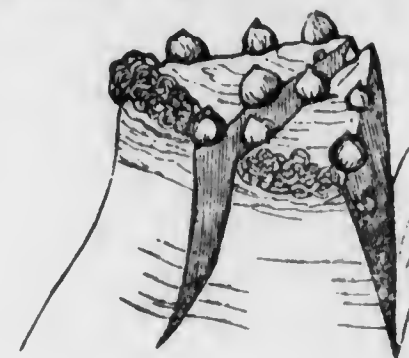
"The propagation of the Hyacinth is a most interesting operation in relation to its culture. It has two modes of increase, in the same way as most bulbous plants; in the first place by offsets, which are young bulbs that form themselves

round the base of the parent root; and secondly by seeds; but as seed saved from white, blue, or red flowers will produce seedling of all shades of color, it follows that the propagation of all existing kinds must be effected by offsets; but as the increase of natural offsets is a rather uncertain process, and of too limited a character, it cannot be depended on to create a supply equal to the demand. The cultivators have therefore adopted two methods to assist the production of bulbs.

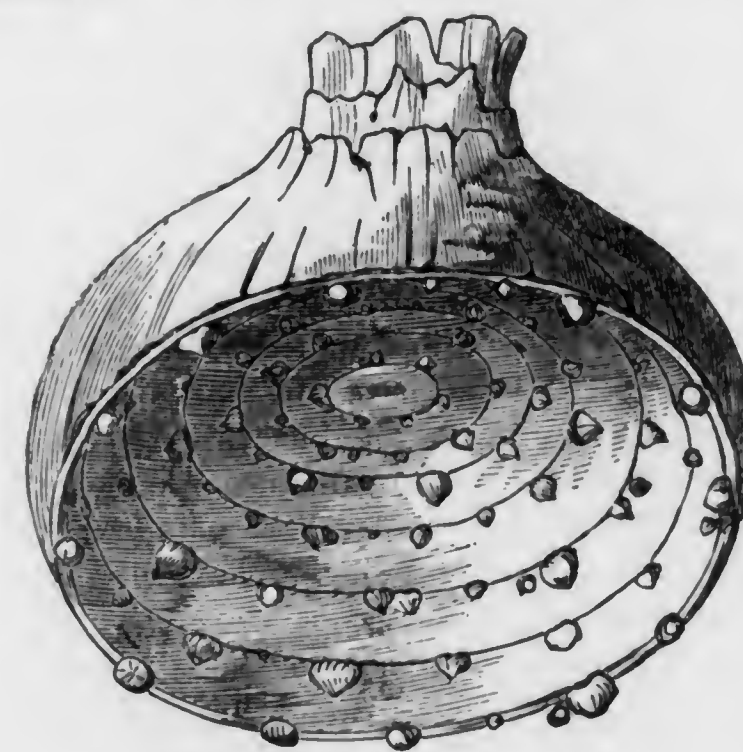


When the bulbs are removed from the ground in June, those required for the purposes of propagation are divided at the base by three or four cuts with a knife which penetrate not quite to the centre of the bulb. This destroys the unity of the flower by dividing the base into six or eight parts. The divided base is then sprinkled with sand, to absorb any moisture that may exude, and then removed to the drying room and treated in the same manner as the general stock. They are planted in October, when numerous small bulbs are formed on the edges of the incisions. The parent bulb, though large and vigorous when divided to induce propagation, seldom produces any leaves, or makes any sign of growth, as all its strength goes to the formation of small bulbs at the base. When taken up from the ground the following summer, the small bulbs are carefully separated from the parent, and dried in the same manner as the matured ones; these are again planted in the autumn, and the process is continued for four or five years,

before they become large enough for exportation.



The second method differs from this, in that the whole base of the bulb is scooped out. Great care is required in the after management to prevent rot. The bulb thus operated on is dried in sand, and planted in due season. By the following summer the scooped interior has become a mass of small bulbs, less in size, it is true, but much more numerous than under the first method. The after management and culture is the same as in the foregoing process, but six or seven years are required to bring the bulbs to perfection. Some varieties are propagated best by the first, others by the second process.



FLOWERS INJURED BY FROST.—It is well known to American Strawberry growers, that when a Strawberry flower is injured by frost, its pistils are the first to suffer, and that it gets a "black eye." A correspondent of the *London Journal of Horticulture* contributed an excellent paper showing that this is the case with all fruits. He concludes by saying:

"It will be seen, therefore, that the most tender portion of the flower or fruit is the style of pistil, and that is the vital part; when that is

injured in any way, however slight, the uses of the flower are at an end. The stamens are almost as hardy as the leaves, and are very rarely injured. The petals, also, which are the beautiful part, stands a good deal of rough usage. They are, however, of no benefit to the fruit. To discover when Apples or Pears are killed by frost, simply look to the pistil, which very soon shows the effect; if it is green it is well, if black then it is dead; and for further satisfaction cut transversely through the young fruit, and experience will soon teach, even with the fairest flower, the value of a black heart."

THE ROSE IN THE WINDOW.—

There's a rose looking in at the window,
In every condition of life;
In days of content and enjoyment,
In hours with bitterness rife,
Were'er there's the smile of a woman,
As bright as a beam from above;
'Tis the rose looking in at the window,
And filling the dwelling with love.

REYNOLDS HOLF.

MOVEMENTS OF CHLOROPHYLL.—M. PRILLIEUX, in a note recently presented to the French Academy makes some further observations on the MOVEMENTS of the GRAINS of CHLOROPHYLL in plants under the influence of light. The green matter of plants, or chlorophyll, occurs, it is well known, under the form of grains. Many years since M. BOHM, a German observer, announced that in certain crassulaceous plants he had seen these grains become heaped up in the middle of the cells under the direct action of the sun. More recently a learned Russian, M. FAMINTZIN, has recognized in the cells of the leaves of a Moss (*Minium*) some very marked movements of the grains of chlorophyll under the influence of light; and his discovery has been confirmed and extended by his compatriot, M. BORODINE. The author had carried out confirmatory observations on another species of Moss (*Funaria hygrometrica*), which he thus described:

"The action of light on the position of the grains of chlorophyll can be conveniently studied at night, with the aid of a lamp. I will recite some experiments made on December 20th last. At 5 P. M. the plant, kept for several days previous in darkness, showed all the grains of chlorophyll applied along the lateral partitions between the cells. It was exposed to the light of a lamp under the microscope, and several grains moved to the upper face; the movement being

very appreciable in the course of an hour, two grains occupying the middle of the upper cell-wall of the cell. The lamp was then put out. At 7.15 the grains which were arranged along the upper partition had mostly regained the lateral partitions. At 11.30 all without exception had become fixed on the lateral cell-walls. The lamp was again lighted, and after a few instants the grains again changed place, and after a quarter of an hour several had glided from the lateral to the upper cell-wall. Their position was successively noticed at 11.55 midnight, 12.15 A. M., 12.30; when the displacement seemed finished the grains were distributed on the superficial partition of the cells; they had taken their diurnal position. Either by the light of the lamp or by daylight I have seen this changing of the grains of chlorophyll from the nocturnal to the diurnal position take place in about an hour.—*Gardener's Chronicle*.

THE ANEMONE JAPONICA AS A DECORATIVE PLANT.—So much attention has lately been paid to plants for spring and summer decoration, that this and other autumnal flowering plants have been unwisely and undeservedly neglected. Plants for autumn display are, however, every year, becoming more than ever a necessity. The recent introduction of so many tender plants for summer has had a tendency to shorten rather than to prolong the beauty of out-door gardens. The old *Anemone japonica* is both valuable and useful. I now, however, wish to call attention to its white variety, *Honorine Fobert*; for, among all late blooming, hardy, herbaceous plants, I know of none that equals it, and its large and lovely pure white flowers are produced in great abundance. This last autumn it was a mass of bloom up to the first severe frost. After this temporary check, and during the subsequent mild weather, it was again in great beauty. Up to the middle of November it continued to make often successful attempts to unfold its profusion of flower buds. In rows and groups it produces a lovely effect, and that at a time when most of the summer bedding plants are dead, or paralysed with cold. As a pot plant it is equally striking. There is generally a dearth of plants in bloom in our conservatories when fuchsias, &c., are removed, and before chrysanthemums and forced flowers come in. During this interval the anemone in question is in its best condition. Its propagation is by no

means difficult. If the larger portions of its numerous fibrous roots be cut into little pieces, each will produce a plant. If examined, they will be found to be covered with small wart-like excrescences, sometimes even a rudimentary leaf may be visible on them. The smaller portions of the fibrous roots need not be wasted, but should be collected, and placed thickly in a flower-pot, and covered over with sandy soil; in a short time the surface will present more the appearance of a pot of seedlings than that of cuttings.

Really these herbaceous anemones should be much more grown. During the past summer we were visiting the gardens of an old residence at Acton, Middlesex, and in some mixed herbaceous borders we found large clumps of the old *Anemone japonica*, and its paler variety, *A. japonica hybrida*, that had remained in the ground undisturbed for a considerable period. The patches were quite two feet in diameter, and a profusion of flower stalks had grown from them to the height of four feet, each of which was literally loaded with fine blossoms, with hundreds of buds coming on to succeed them. A fitting companions to the splendid and continuous summer-blooming plants is the white variety mentioned above. During the past summer we grew and bloomed in 32 sized pots some plants of *A. Honorine Fobert*, which grew to the height of about two feet, and bloomed the whole summer through, till the frost cut them off. Being somewhat confined in the roots, the flowers were not so large as if the plants had been growing in the open air, but this was amply compensated for by the immense number produced. Out of doors as well as pots the *Anemone japonica* flowers freely and continuously, and our readers who have not already got them in their gardens should obtain them. A good, deep, and somewhat rich loam suits them well but they should not occupy a low, damp spot. Once obtained, these herbaceous anemones can be soon increased by division at the roots in the autumn or early spring. They can also be raised from seeds. The white variety is not so plentiful as the older kinds; perhaps because it is not so much appreciated as it really deserves to be. Once grown it will never be abandoned as a summer decorative plant for large or small flower gardens. For cutting from, it is also invaluable, and the flower stalks are long and stout, and the flowers are by no means of a fragile character.—*Gardener's Record*.



BELGIAN AZALEAS.

ENGRAVED EXPRESSLY FOR THE GARDENER'S MONTHLY.

The Gardener's Monthly.

Horticulture, Arboriculture, Landscape Gardening, and Rural Affairs.

EDITED BY THOMAS W. SWAN.

Vol. XLII AUGUST 1890. No. 8.

HINTS FOR AUGUST.

FLOWER GARDEN AND PLANTING GROUND.

Every reader of our paper needs to be told that the summer is now here. It is the time when the garden should be in its best condition. To keep it so, it is necessary to pay attention to the plants that are in the garden. A large amount of work is to be done in the garden during the month of August. The first thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The second thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone.

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It is pleasant to see the increasing attention given to hardy herbaceous plants. Now is the time to look after collecting seeds. If the places where they are sown can be covered with some-

thing, they will be safe. The first thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The second thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The third thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The fourth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The fifth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The sixth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The seventh thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The eighth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The ninth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone. The tenth thing to be done is to look after the plants that are in the garden. If they are not in the best condition, they should be taken care of. If they are in the best condition, they should be left alone.

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HINTS FOR AUGUST.

FLOWER GARDEN AND PLEASURE GROUND.

Every reader of our pages ought by this time to know how to trim a hedge. Experience shows all do not. Perhaps if we put the rule in a few words, it may be remembered. To keep all parts of a plant healthy, every part must have light. A hedge trimmed with upright sides and square top, allows light to the bottom parts of the hedge only mornings and evenings, therefore, the faces of the hedge should be sloping. Such hedges mowed once a year, are models of perfection for twenty years.

The improvements in mowing machines have nearly driven the scythe out of use. This is to be rejoiced at. It is a blessing to hundreds of gardeners, and numberless places are enabled to be kept pretty that were in roughness before. Every one should have a mowing machine. But every new idea produces evils as well as good. So these machines allow small weeds to get light which were crowded out in the long grass of past times. These now crowd out the grass in their turn. We pointed out this consequence when mowing machines were getting general. Hundreds now find it so, and ask us for the remedy. All that can be done, is to keep up the health of the grass by top-dressing in fall. This will keep the grass up in good heart longer than it otherwise would be. But it will fail in time; then the best thing will be to break up the plot, and sow it down again with fresh grass.

It is pleasant to note the increasing attention given to hardy herbaceous plants. Now is the time to look after collecting seeds. If the places where they are sown can be covered with some-

thing to shade them, and kept thus shaded till next spring, it is best to sow now. Most of our best hardy herbaceous plants are natives of America, hence if we see very pretty flowers in the wild wood or prairies, there will be nothing unfashionable in saving their seed and sowing in the garden also. When sown at this season, they will mostly flower the next year. Some seeds must be sown now to grow at all. Sweet Briar is like this. Wash the Haws out of the red pear like fruit, and sow in sandy soil.

Hollyhocks are generally increased by dividing the roots or cuttings of the stems; but these are best renewed occasionally from seeds. The very double ones do not seed freely when unaided by art. The petals which are produced from the staminal column, overgrow the pistils and prevent the pollen from acting. Therefore it is necessary in order to get seed with certainty, to rub a camel hair pencil in the pollen and twist it around in the centre where the pistils are. An examination of the double flower will show what is meant. Single Hollyhocks usually vary much from seeds; but double ones reproduce themselves very nearly, because it is hard for them to fertilize with their own pollen, and worse from others. If new varieties are desired, use the brush in the pollen of some other color than than one you wish seed from.

Some plants vary from seed very much without any cross fertilization. Carnations and Pinks are of this class. These seed very freely in this country, and many forms may be had from one plant. They are beautiful, and as sweet as they are good looking. Pity they are not more grown. Left to themselves, they will



BELGIAN AZALEAS.

ENGRAVED EXPRESSLY FOR THE GARDENER'S MONTHLY.

dwindle away in time. Every other year the side branches should be layered into rich soil to renew them. Roses may be raised from the haws, like Sweet Briars. They flower in two years, and may make one's fortune. *Devoniensis* or the Magnolia Rose was thus raised in a lady's garden. She was paid well for the whole stock.

FRUIT GARDEN.

Two successive seasons of good crops is highly encouraging to the fruit grower. He must now take care that exhaustion does not follow. The wise orchardist has thinned his fruit at an early stage of growth, and will now be looking round for material to fertilize them with. It is not too late to do it yet to advantage. We should surface dress with manure, compost, or rich materials, any time between now and frost; but the earlier the better. There is not much use in putting it on after the soil is frozen. Rains wash its best portions away. As to kind of manure, it makes little difference. If the surface is not disturbed much, the richer the surface soil the better. We have noticed but little difference between animal manure and mineral. Some of the best and healthiest trees we know, stand near the manure heaps in farm yards.

A little trimming is useful to most trees at this season. The Blackberry and Raspberry may have their tops shortened so as to leave the canes about four feet. Some do this earlier in the season; but the buds are apt to burst if done too soon. In like manner, pear and apple trees that grow well, but produce no fruit, are benefited by having, say half of some of the young growth cut back. The buds then left are very likely to form flower buds, in place of growth buds for next season. Many take out the old shoots of raspberry and blackberry after they have done bearing, and we have in times past recommended it ourselves; but on further observation, we see very little good, if not positive injury. The partial shade the old stems make, seems rather beneficial than otherwise under our hot suns.

Strawberry planting often commences in August, providing the weather offers a chance. Get the soil in readiness for this chance. Heavy manuring is not good for the Strawberry except in very poor soils. Wet soils are not good. But the soil cannot well be too deep. In the field subsoil,—in the garden dig at least 12 to 18 inches. Strawberries do better moderately close than too wide, some kinds do very well in beds.

After a piece of ground is dug at this season for Strawberries, roll it well with the garden roller. When ready to plant, make holes with a dibble, fill the holes with water, and when it soaks away, put in your plant which has been kept in water to prevent wilting. But, in putting in the plant do not plant too deep. "Too deep" kills 99-hundredths of all the Strawberries that die in the year from transplanting. "Too deep" is when anything but the small fibres are buried under the surface.

As to varieties, it is strange to say that after so many new kinds, *Triomphe de Gand* and *Wilson's Albany* still find the greatest number of advocates. *Downer's Prolific*, *Jucunda*, *French's Seedling*, *Agriculturist*, *Brooklyn Scarlet* and *Fillmore* are kinds which prove good in many situations,—and about Boston, *La Constante* and *Hovey's Seedling* are still largely grown.

The Grape vine at this season will require attention, to see that the leaves are all retained healthy till thoroughly ripened. It is not a sign of healthiness for a vine to grow late; on the contrary, such late growth generally gets killed in the winter,—but the leaves should all stay on, to insure the greatest health of the vine, until the frost comes, when they should all be so mature as to fall together. Frequent heavy syringings are amongst the best ways to keep off insects from out-door grapes, and so protect the foliage from their ravages.

VEGETABLE GARDEN.

As soon as your vegetable crops are past kitchen use, clear them out. Never suffer them to seed. In the first place, a seed crop exhausts the soil more than two crops taken off in an eatable condition; in the next place, the refuse of the kitchen is likely to produce degenerate stocks. Good seed saving is a special art by itself, always claiming the earliest and best to ensure a perfect stock.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends, in a slight degree, to weaken the growth of the plants. Take care, also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

As fast as Endive is desired for Salad it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when pots or boards are employed.

In cold or mountainous regions, Melons are hastened in the ripening process, and improved in flavor, by a piece of tile being placed under the fruit.

Keep weeds from your compost heaps, as they exhaust the soil, and bear seeds for future browsweatings.

Sow Lettuce for Fall crop, thinly, and in deep and very rich ground.

Early Valentine Beans may still be sown early in the month,—the soil for a late crop should be well trenched, or if the Fall be dry, they will be stringy and tough.

Cucumbers, Squash, and other similar plants, often suffer from drought at this season. Cold

water does not help them much, but a mulching of half-rotten leaves strengthens them considerably.

Cut down straggling herbs, and they will make new heads for next season.

Towards the end of the month, a sowing of Spinach may be made in rich soil, which will come in for use before Winter. That desired for Winter and early Spring use, is usually sown in September in this region. A few Turnips may also be sown for an early crop, but will be hot and stringy unless the soil is very rich.

Corn Salad is often sowed at the end of this month. It does not do so well in damp soil or low situation.

COMMUNICATIONS.

ONE HOUR AT THE NURSERIES OF MESSRS. HOOPES & CO., WESTCHESTER, PENNA.

BY MR. J. W. WOOD, WASHINGTON HEIGHTS, N. Y.

For the benefit of future horticultural pilgrims like myself, I would remark that these Nurseries are situated about 28 miles from Philadelphia; time, (according to trains) from 1 hour 15 to 1 45; fare, 80 cents each way. I would also remark, that if the traveler or tourist has no other object in view, (if he possesses a natural or cultivated taste for the beauties of Nature,) he will be amply repaid. The scenery on the route is not strikingly romantic or picturesque, but it amply atones for this in other respects,—it reveals to you that nature has spread before you a temptation to come and live here amid these beautiful valleys and rolling hills. Almost every foot of it as far as I could see within my limited line of vision, is susceptible of cultivation. You scarcely pass over 2 miles, but what you see a brook or a streamlet, (or if the Scots prefer it, say a *burn* or *burnie*.)

It is also well covered here and there, just when it is required, with the finest timber, useful and ornamental. Even the rocks where they jut out here and there, just to give you (or remind you) a hint that they are alive. They suggest an idea of beauty and utility—also beauty, when

they modestly expose themselves—because they have not that glare and glitter of our N. Y. Island granite rocks, there is not so much mica and quartz in them. They have feldspar and more magnesia, which is so grateful to the wheat there, and does not injure the grass either. The farmers know this, which is the reason why these two crops are the predominate features on this route, I presume.

There are not many striking specimens of architecture or buildings on this route, excepting one, which attracted my attention. It is on the right of the road, and I think about 10 or 12 miles from Philadelphia, about ½ mile from the track. It is a noble structure, and built on a most commanding elevation, and as I found out afterwards, built for a laudable purpose, *i. e.*, for the education of the junior members of the "Friends" family. I may be mistaken, but as far as I could judge, it is built of the native rock there, which is a mixture of the Serpentine talcose and magnesia, which is tolerably durable and of a pleasing color. [Strathmore College.—Ed.]

In passing by this building, I felt a very strong impulse to pull the strap and get out, and take a trip up on the roof, and go on by the next train. I found this impracticable, so when I returned to Philadelphia, I took my revenge by gaining admission to Girard College, and seating myself on that roof. I was much pleased

with the view; but am positive the other view would have afforded far more pleasure. But I find, as I fear my readers do, that I am delaying too long; instead of taking the express as I intended, I have taken the "way train;" but here we are at the depot, and am informed that it is 15 minutes walk to the Nursery, which I found correct. A very unpretending *Quakerish* looking sign tells you that this is your destination for the present.

As you enter the gate, on the left is a large specimen bed of Rhododendrons in full bloom; out of the number, the following are distinct and good, viz: "*Lee's Dark Purple*," "*Album elegans*," "*Purpureum fimbriatum*," "*Blanda*," and "*grandiflora*."

In connection with this, I would remark that I consider the horticultural public are much indebted to Messrs. Hoopes, Parsons, and one or two others who have engaged in this enterprise. It is a manifestation of public spirit. It requires capital and skill.

We have plenty, (or shall have soon of evergreen trees) but good reliable evergreen shrubs—are a rarity yet. The answer to this will be, that we can import them from Europe cheaper than they can be raised here; very likely it has been tried. Try it yourselves.

After looking at the Rhododendrons, "face right about," and you will see a pretty lawn of about $\frac{3}{4}$ of an acre, skirted by a well graveled walk. On the margin of this, are planted out specimens (or what will be specimens bye-and-bye,) of the choice Conifers. Amongst many others, I noted the following, viz.: *Abies excelsa* prostrata, a curious, and would be a very effective plant in the hands of an intelligent landscape gardener; *Abies conica*, another good variety of the Norway, not very common yet; also *Abies Gregoriana*, another gem of that genus; also *Nigra pumila* belonging to the same section. *Taxus cuspidata* and *Retinospora pisifera* aurea are good, and will make a mark in the future, if I am not mistaken. These are only a few of the many that attracted my observation.

At the back of the lawn are three propagating houses, which I did not enter. In front of these facing the lawn, and also at the rear one of the houses, were some beds, worthy of a slight notice.

The one in front facing the road, is a large circular bed about 25 feet in diameter; in the centre is one plant of one of the best varieties of the Castor Oil plant,—surrounding this in cir-

cles, are the different varieties of Cannas, next to these a row of *Achyranthus Verschaffeltii*, again another row of the broad leaf Periwinkle, (*Vinca elegantissima variegata*), and again on the outer edge to complete the picture, a belt of the dwarf summer flowering Lobelia. I should like to have a look at this bed from the outside of this fence about the middle of September. If I could be sent by telegraph or through a pneumatic tube, there might be some possibility of gratifying my desire. As this idea comes within the range of impracticability, the next best thing I can do, is to advise any of my gardener friends who visit Philadelphia, to go there and see for themselves, and then record the results of their observations on the pages of this *Monthly*. This bed is flanked by two other large beds; one filled with scarlet Geraniums, not with old straggly worn out plants from the greenhouse where they have been doing duty all winter, but young vigorous, healthy plants of the same color, and which will give a good account of themselves (if not before) about the time I pass through my pneumatic tube in September. These side or flank beds are encircled by an edging or belt of one of the old fashioned *Stone* crops (*Sedum sex-angulare*) and accords well with the other grass verging.

At the rear of one of the propagating houses, is a very handsome, bold, scroll shaped bed cut in the grass. Time not permitting, I only glanced at a few. The most striking plants I saw, were *Weigelia rosea nana variegata*, *Forsythia Fortunei*, *Spiraea callosa alba*, &c.

From this we turn down into the herbaceous grounds where there is a fine collection of hardy herbaceous plants, and I must say that it would be much finer and more extensive if gardeners and the public in general would afford a little more encouragement and patronage to men like Messrs. Hoopes and a few others to keep these very useful plants in existence. The first plant that attracted my attention was a Columbine which I had never before seen, *Aquilegia cœrulea*. Why or where it received this baptismal name, dependent knoweth not, but he knows what he thinks, and that is that it is a misnomer: *bicolor grandiflora* would have been quite as euphonious, and far more expressive as regards the colors, as they are about equally balanced, $\frac{1}{2}$ clear white, and $\frac{1}{2}$ nearly a pure azure blue. It is a beautiful plant, hardy and one of the most valuable acquisitions in the herbaceous line since *Dicentra spec-*

tabilis was introduced, nearly twenty years ago. In this department I noticed a fine collection of Iris in full bloom, also a plant which I have not seen for thirty years, a plant of no special beauty, but very rare, as rare about in its native habitat in Great Britain as it is here, (*Salvia pratensis*.)

If I dismiss this subject on herbaceous plants, I shall feel dissatisfied, unless I call attention to a remark Mr. Hoopes made to me in reference to them. He said this class of plants he was fond of, and some time ago had more variety, and paid more attention to them, but the demand for them seemed to have ceased, and they actually did not pay the expenses. Now this I feel certain is true, and "pity 'tis true," as they have been neglected and displaced in a great degree to make room for a lot of evanescent trash which bear no comparison to them, either in worth or beauty.

There is a very fine collection of Clematises here, specimen plant of each variety trained to high rustic posts. Among other fine ones, *Sophia flore pleno* and *Viticella venosa* attract notice. Another valuable addition to the lawn trees when it becomes more plentiful, will be *Alnus imperialis asplenifolia*, it looks very promising in its growth.

We now pass on through row after row of fine young stock of evergreens—Magnolias, two or three varieties of Copper Beech, till we come to the grounds surrounding the Proprietors' residence, and here we have a treat in glancing at the fine specimen evergreen and deciduous ornamental trees that greet us left and right. The first is a plant 12 feet high of *Libocedrus decurrens*, the next *Thuja aurea variegata*, a beautiful plant, *Taxus* (Rollison's elegantissima) fine, *Glyptostrobus sinensis*, 20 feet high, and perfect in shape; Plain and Copper Beeches in all their fantastic forms and colors, and one of the finest trees of the white Spruce I have ever seen, and here close by, is No. 2 of that grotesque nondescript Japanese Coniferæ, the *Ginko* (*Salisburia*) *adiantifolia*. No. 1 I saw some time ago at the nurseries of Mr. L. Menand near Albany.

Left and right are noble specimens of the Norway. Several had been cut out this winter. But the most conspicuous plant (it was in full bloom,) was a very large plant of the *Calendulacea* variety of Azalea; as far as could be made out from the label, the variety is Prince Henri de Borie. Princes I must admit are antagonis-

tic to the genius of the constitution and institutions of the country. All I can say (for the adornment of the country) is the more we have of this Prince the better. Mr. Hoopes I think said he had it from Mr. Van Houtte, and I believe it is the only plant he possesses.

P. S. The *Aquilegia cœrulea* I referred to, I forgot to state that Mr. Hoopes received the seeds from Dr. Parry, who collected them when engaged in the survey of the Rocky Mountains.

ROSES.

BY MR. PODBURY.

A Essay read before the Geneva Horticultural Society.

At your last meeting here, I read a paper on the best varieties of popular Roses, in their various classes or families as they belong. I intended to go through the whole of the families or classes, from the Prairie to the Sweet Briar, *Rosa rubignosa*, or Eglantine Rose of the Poets, as seen by the roadsides in isolated places, which is known to all by its rich perfume (from its leaves); but my time has been so much taken up this season that I could not attempt to give it the attention that it should receive. At some future time I may commence and go through the whole of the families or classes of Roses. My principal object to night is to give you my ideas of exhibition Roses, in a cut state; forcing Roses in pots; growing Roses in pots for exhibition; a few new Roses as flowered this season; and insects and diseases the Rose is subject to; hoping I may command your attention and interest to this most deserving and popular flower the Rose.

1st. EXHIBITING ROSES CUT IN BOXES.

Every one who cultivates Roses may not do so with the design of becoming a candidate for floricultural honor, but the most energetic and ardent lover of Roses is loth to let his or her flowers remain at home on an exhibition day, as they oftentimes do through timidity. To such I would say, try and try hard, and you will soon find your timidity gone, and you will be able to face competition with a bold step. If you are beaten by a more worthy compeer, it is no disgrace; but try again, "faint heart never won blue ribbons."—Another class of exhibitors recklessly cut and put up for exhibition anything in the shape of a Rose, and bungled together without any tasteful arrangement, and if beaten often quarrel with the good judgment of the

censors for not giving them a first prize. To such I would say, stay away; your company is not wanted. What is wanted in Horticultural exhibitions is something to improve the mind and taste of the public at large, and increase a fondness for flowers. What conduces more to happiness and comfort than to see a well kept garden enlivened with flowers of all descriptions and well stocked with the choicest fruits and vegetables? In nine cases out of ten let me see a well kept garden, and I shall see a well kept house to correspond, and happiness and comfort reigning within its walls.—On the other hand, let me see a garden full of weeds, gates off the hinges, a few scattered fruit trees with half the branches broken down, and I could almost guarantee that squalid poverty reigns inside. Horticultural exhibitions have been the making of many thousands of homes of poor men who used to spend their leisure hours at the ale house, village store, or idle corner, by inviting them with small premiums to compete for prizes at Horticultural fetes. In the manufacturing districts in England the working men hold their weekly shows during the season, from May to December, and it is really quite astonishing to see the wonderful specimens these men produce in fruits, vegetables and flowers. There are Auriculas, Carnations, Pinks, Picotees, Dahlias, Roses, Apples, Pears, Plums, Gooseberries, Currants, Raspberries, Cucumbers, Celery, Potatoes, Onions, Lettuce, etc. The first-class gardener has no chance to compete with these men in the small classes, as he has too many other things to attend to. I have strayed a little wide of my subject; let me now return and follow the Rose.

Roses in a cut state should be exhibited in trios in boxes. Say for 24 varieties of Roses the box should be 4 feet long, 21 inches wide, 8 inches high at back, and 4 inches in front. This angle allows a good slope so that all the flowers can be seen to advantage. The box should be made of inch material, and painted green, a false bottom made to fit the inside, to $\frac{1}{2}$ inch of the top in which to place small tin tubes to hold water to keep the flowers fresh. Neatly cover the top with green moss. For 96 varieties 4 boxes of the size mentioned above; and for 12 varieties, half the size for 24.

As to arrangement, endeavor to get all your flowers of a uniform size as far as possible, using the larger ones for the back row, as nothing is more out of taste than to see a large rose placed

in the middle or front row, with small ones on each side. The outline of show Roses should be circular and free from raggedness; the flowers should be full, and the petals arranged as regularly as possible, the larger the flowers the better, providing they are not coarse, and the colors should be varied with all care. In gathering the flowers the earlier in the morning the better, before the sun has power to alter the beautiful tints especially of some of the high colored, thin petalled varieties which, alter quick in dry, hot weather, and damage their beauty so as really to make them unfit for exhibition in the latter part of the day. Two persons of good taste and judgment should attend to the cutting operation and staging, and call for the flowers so that they will keep fresh and last through the day, or two days if required. It is desirable that every stage of the flower should be presented to view.—those thin petalled, high colored varieties should not be more than three parts open when cut, and if shaded and sprinkled with clean water, by noon will have fully opened and appear to their best advantage. There is a great exception in some of the stiff petalled varieties, such as Baron Prevost, Caroline de Sansal, Charles Lawson, Madam Charles Verdier, and Wm. Griffiths. All of this type should be fully opened when cut; they will keep good four or five days if attended to. All cut Roses should be shown with their foliage intact and not mutilated and trimmed off as is often seen, like a rooster to be pitted to fight a barbarous battle to please a rough crowd. All buds should be left on so that there can be no deception, in what you really see as a perfect rose. By this budding you may increase the beauty of worthless roses, and oftentimes bring such varieties out apparently grand that are utterly worthless, unless treated so. Such varieties we can well dispense with, as what is really wanted is constancy, and true character. Some little success depends on the taste with which the flowers are arranged. Nature should be studied as a model. It requires just as much taste to set up a first class box of Roses, as it does to plant a group of flower beds in harmony. Much will depend on the material you have. Contrast should be aimed at that no two similar colors should be in contact with each other.

All roses exhibited should be named correctly, and also properly classed.—Neatly written cards placed over the box opposite the flowers they bear reference to, is well; but I think nothing

better than wooden pegs, plainly written on and stuck in the moss. They cannot be surpassed as they cannot be displaced, so as to cause confusion and errors in names.

Now you have the flowers arranged ready for travel perhaps 300 to 600 miles before they are to be exhibited. What is to be done with them? Shall the covers be put on the boxes and the flowers be kept closed from the air? By no means. Seek as cool a place as possible and free from draft and away from the light until ready for departure. When ready, place the covers on and see that they are securely fastened. Insert a few airholes in the sides of the boxes, if the weather is hot, and if dusty have a few corks in your pocket, if traveling by road, to prevent the dust getting in. Withdraw them as soon as convenient and let them have all the air possible. If you are traveling by railway, you will have to keep a sharp lookout that your boxes do not get upset, as railway officials are a rough set to handle delicate flowers. I once had a beautiful box of 24 completely spoiled quicker than I could possibly get to attend to them. Of course my temper was up. The only reply I got was, "you should fasten them securely," and so finished all my prospects for the day.

Judging Roses is an arduous and irksome task, which no one should undertake who does not really know how. Many men would go and judge a collection of Roses by mere sight and give the honors to a gaudy, worthless lot, bearing no comparison at all with a choice collection of well made up flowers in form, coloring, good foliage and neat arrangement. Cut flowers do not require so critical an examination as Roses in pots; still they should have their share of attention. I have often heard remarks passed by men appointed as censors, upon such Roses as Blairii No. 2, Lord John Russell, George IV., Madeline, etc. "What glorious flowers; these must have the first prize!" And poor Coup de Hebe, Madam Rivers, Madam Vidot, Glorie de Santenay, Senator Vaisse, Charles Lefebvre, etc. must stand back in their opinion, as bearing no comparison with the man of straw. So it is in human life; the mere man of show is far more thought of than honest, sterling worth. If two censors cannot agree, they should call in a third party, if to be found, and let his decision be final. I well know errors will creep in occasionally. My advice to censors is, if a collection of flowers is not worth a first prize, give it a second, if worth it, if not worth the second, disqualify it, and

state your reasons for so doing. When two sets of flowers are so nearly balanced that it would be difficult to draw a line, give them both equal prizes; and not by any means give a prize where it is not deserving, for by so doing you always encourage a lot of rubbish brought to exhibitions by the unskillful and slovenly cultivator, which tends more to harm the progress of Horticulture than to improve it.

A little thing I omitted in cut Roses. If the weather is dry and hot, a shading with brown paper is very essential to many of the deep colored flowers to preserve the natural colors. A good soaking of water is beneficial occasionally.

2nd. GROWING ROSES IN POTS.

To grow Roses in pots for greenhouse or window culture is a very pleasing occupation. To grow them successfully, choose some young vigorous plants, say in April or May, either on own roots or on Manetti stock; repot them in six inch pots, and plunge them in open air to the rim of the pot; keep them well supplied with water and occasionally give them a little manure water; keep all the flowers pinched off until the middle or end of September; you will then have a plant with six to eight well ripened shoots. Prune them back to a well ripened eye, and shake them clear out of old soil and repot them, using a compost of good loam and well rotted manure,—about two-thirds of the former to one of the latter, with sufficient sand to keep from packing hard; soak the newly potted plant well with water, and plunge it again in a sunny spot; and by the end of October you will have the pot full of young and vigorous roots, and the shoots from three to four inches long. Then introduce a few at a time to the greenhouse or window, and by the time the frost has killed the Roses out of doors, these will be ready to succeed them, and give you a supply of rose buds without a great expense of fire heat from December to the end of January. By adding a few fresh ones, you can be well supplied with rose buds during the winter months, without a great deal of trouble and expense. The Roses best for this purpose are some of the best Teas, Chinas and Hybrid Perpetuals, always choosing the strongest growers, and freest bloomers.

3rd. ROSES IN POTS FOR EXHIBITION.

This point is not so easily obtained as one would imagine. In fact, I may say it requires a deal of energy, attention and time to make a first-class specimen Rose, fit for exhibition.

When you have once obtained it, you may well be proud of your success; you may say you have accomplished one of the greatest feats in Horticultural Science. Nothing but skill, industry, foresight and perseverance will ever accomplish this end. To start a batch of young Roses to grow for specimens, select only the best growers and flowers combined, in young, thrifty plants in three inch pots, in May, choosing a selection of all colors, from Teas, Noisettes, Hybrid Perpetuals, Hybrid Bourbons and Hybrid Chinas; repot them in seven inch pots, in a rich compost of turfy loam, two parts, with one part of well rotten cow manure, with a mixture of fine charcoal and coarse sand. Pot them firm, but not so hard as to pack.—To grow them vigorously, make a hotbed of stable manure, same as for a hotbed frame, where the rank heat has escaped; plunge the pots to the rim; say about eighty to eighty-five degrees of heat; you will be surprised to see the vigor with which your plants will grow. Keep all blooms and weakly wood pinched away; by the end of July, if well attended to, the plants will be ready for another shift, using the same compost as before; the size of the pot this time, must be regulated according to the growth made; if they have done as I should expect, a ten inch pot would be the size; at this operation a few neat stakes should be stuck in. Draw out all the shoots to bring the plants in form, keeping an eye to making it a pyramid. The tallest shoot to be placed in the centre, and four or five placed round it to correspond; drawing all the others as close to the rim of the pot as possible. As soon as potted and staked turn the bed over and add a little fresh manure from the stable yard, and plunge them again down to the rim. By the end of September your first year's plants will be something near two feet high, and two feet through at the base; a tolerably good plant for one year. Now it is time to let it go to rest, by lifting it gradually out of the hotbed about two inches at a time, for the next month, in order to ripen the roots as well as the tops. Do not let them suffer for want of water while ripening. By the end of October the plants are ready to be placed in their winter quarters, or laid on their sides. To prevent the roots getting too wet and rotting, before severe frost sets in, take your plants and place them away in a cool cellar, giving as much air as possible, at all favorable opportunities. Should you want any of your plants for exhibiting the following spring, about the first week in January select such as

you require, and shake the soil clean away from them, and repot them in the size pot you are allowed to exhibit in. Soak them with water and place them in a cool greenhouse, in which the temperature is not kept above 40 degrees at night. They will then soon make fresh roots and begin to swell their buds. Now it is time to prune them, which is one of the most essential points in growing. Most people are afraid to use the knife freely. I should cut back my plants to within four or five eyes of their last growth, or even to one eye if I found my wood was not well ripened; if your first plants are wanted for blooming, say by the middle to the 20th of April, about the 1st of February place them in a gentle bottom heat, say from 55 to 60 degrees, avoiding top heat as much as possible to prevent them growing weak. Give as much air as possible (avoiding cold draughts), on every available opportunity. As soon as your plants begin to grow freely, sprinkle them over the foliage with lukewarm water morning and evening, to encourage vigorous growth, and give a little weak manure water every time your plants require water, which should be at least, three times a week. If your plants have been growing steadily, by the middle of March you will have a most luxuriant foliage, and the buds formed, which will give a good idea of which is the best for your purpose. Now is the time for you to commence to stake out the young shoots and bring your plants into form, and for the next month you will have your hands full of work.—They must be watched carefully, as you would watch a child, at all opportunities, from sunshine and shadow, or change; to bring your collection all into bloom by the given day. The day is named and will not be put off for you. If you have been idle and slovenly, it tells against you, in favor of the more careful and industrious. Presuming you have your plants all that can be desired—you have still more work to do; from where you are located, the place to exhibit them is, perhaps, 100 to 500 miles, and you are anxious to get them safe. Every shoot must be tied to a firm stake, and every bloom wrapped carefully in cotton, wool, or tissue paper, to prevent the bruising, and if you have to travel by railroad, always have your plants placed in the back end of the car, as they are not shaken one half as much by the vibration, as if in the front end of the car. Having arrived at the exhibition, if you can possibly get into a quiet secluded corner, unpack your plants carefully,

have a sponge in your pocket, and wipe off every speck of dirt on the foliage, and if you have an hour to spare, sprinkle your plants all over lightly and close them from the light. They will be as fresh and vigorous as if only brought from the greenhouse. As soon as convenient select, if you can manage it quietly, the best position on the stage, and take time and place them up quietly and arrange them so as to show off to the best advantage. This is a little help. As soon as everything is done, walk quietly round and eye competitors, and see how you stand, and if you can improve at all, do so as quickly as possible. "There is no music in a second fiddle." Should you be the successful competitor, the honor is of far greater value than the prize; whether you are in private or public business, your name goes before you. If beaten, try again. Notice on what point you have been beaten, and try to make that point good. What is to be done with the plants that you have already shown? Don't neglect them by any means, but follow them up as smart as you did last year, then by the end of the season they will be about five feet high and as much through—fit to show in a second class. The year following, follow the same directions, and the third you ought to be able to compete in the first class with plants 6 feet high and five to six feet through.

I think I have given you the secret of specimen Rose growing in pots, and I don't think it would harm Geneva to attempt it, and at once; and not let it be said that the whole energy and soul of the Nursery business lies in a neighboring city. Try what you can do.

We have flowered a few of the new Roses this season, and I find those named below first-class, although I must say they have not had a chance to come out as they ought to, there being so much red tape in the Custom House, as to duties, etc., in this country, that the roots were completely dead when they got here. They had to make all new roots from the stem, and still have done well. The following are the names of the best that have flowered:

Antoine Ducher, Horace Vernet, (grand dark crimson, purple shaded, decided improvement on Prince Camille de Rohan), Dr. Andry, Madam Alfred de Rougemont, Madam Moreau, Madam Therese Levet, Margeurite de St. Armand, Mons. Bocconne, Paul Verdier, Baroness Rothschild, Madam Noman, Pitford, Soie de Mons. Poiteau, Thyra Hammerick.—These are all

perpetuals. Bourbons—Rev. II. Dombrian. Tea scented—Clothilde, Reine de Portugal, Souvenir de Elise Vardou, Madame Falcot.

ENEMIES OF THE ROSE.—A good soil and situation, free air and full sun, with good manuring, pruning and good culture, will prevent more diseases than the most skillful would ever be able to cure; still there are diseases, all roses are more or less liable to, viz.: Aphis or green fly, Mildew, Black Rust, rose slug, larva of the Sawfly, leaf hopper or thrip and the Rosebug or Beetle.

Aphis.—The best remedy I have ever found to completely destroy them is a solution of tobacco water, mixed with soaked Quassia chips and syringed over the whole bush of an evening. If done effectually, by morning you will not find one alive.

Mildew or White Fungus.—This is evidently caused by a too cold, damp atmosphere, especially when plants are subject to a sudden change. It often makes its appearance in a few hours. If in a house, the surest way to completely eradicate it, is to fill the house with vapor of quick-lime and sulphur; about 14 lbs. of fresh lime to 1 lb. of sulphur, will completely clear a house of Roses free from mildew in one night. By seeing them next morning you would not think they had ever been tainted with mildew. Treatment for mildew in the open air—add two ounces of blue vitriol to 4 gallons of water, and syringe the plants affected. It is apt to injure the foliage occasionally, but it will prevent mildew. Another remedy is to sprinkle the plants while the dew is on early in the morning with quick-lime and wood ashes, which answers well, but is not so effectual as the above.

Black Rust.—This disease is much similar to the blight in the pear in this country. I have always attributed it to stagnation, caused by too luxuriant growth and too sudden change from wet growing weather, to sudden drought; the roots cannot find nourishment to support the sap, consequently stagnation and disease are sure to follow. I have seen acres of Roses completely stripped of their foliage in a dry summer in July by this blight. In 1867, I saw through a quarter of Roses a strip of land that had been trenched, two feet deep, where an old road had been used. While both lots of Roses on each side were completely stripped of their foliage, those in the deep trenched land were most luxuriant, not a particle of blight to be seen. I

should always myself have my land to grow Roses thoroughly subsoiled, if on a large scale; if small, trenched. I know of no cure possible for black rust better than deep cultivation.

Rose Slug or Larva.—A sprinkling of Hellebore, say two ounces, mixed with two lbs. of Potash, will completely eradicate these in two dressings.

The Leaf Hopper or Thrip is a most detestable insect in Roses. The best remedy I have ever found for it, is to sprinkle gas lime amongst the bushes, but not strong; better to do it twice moderately than an overdose to kill the bushes; or make a solution of tobacco water and whale oil soap, and syringe the underside of the leaves carefully; this will help destroy them, but not so effectual as gas lime.

I have now completed the few remarks which you have so kindly permitted me to make. My time being fully occupied, I have been unable to arrange and properly treat the most interesting branch of floriculture. It has been my good fortune to be reared among these queens of floral beauty, and I may be pardoned if I desire to communicate my enthusiasm to others. If I have been successful in making clear to you some of the results of my experience and observation, I am amply rewarded, for if you come to know what roses may be made by preserving and intelligent industry, you will, I am sure, awaken from your lethargy and rival the mother country in producing the flower that pays and pleases the most. Your climate and soil are incomparable. You only lack the disposition. I have confidence that you will not let beauty and pride both be lost to Geneva.

BEAUTIFUL TREES.

BY CHRONICLER,

Magnolia conspicua blooms earliest in spring, and is then surpassingly beautiful. The flowers are large, of tulip form, pure white; and produced in great profusion, long before the expansion of the foliage, which makes the tree the most conspicuous in cultivation. It is a native of China; and should be set in all arboral decorations where it will withstand the changes of climate.

Cercis canadensis keeps full, the chain of blossom, between *Magnolia conspicua* and the following trees:

Cerasus multiplex called double-blooming Cherry, is of large size, thrifty growth, and beau-

tiful proportions; the branches forming a half globe, and wholly covered with its double daisy-like blooms of pure white; produced in immense profusion, and last nearly a month.

Æsculus hippocastanum and *coccinea*, called white and red blooming Horse-chestnuts. Are so generally grown, well known, and highly admired for their beautiful blooms, and compact habits; forming colossal leafy columns, of symmetrical granneur. They require no further description here than to state, that the beauties of both are greatly enhanced when growing but a short distance from each other.

Tilia Europæa, is called European Linden and Lime tree. It attains a medium size, with foliage and form the most graceful, and is truly beautiful. It looks as if the most expert artists masterpiece. The blooms are a rich yellow color with most charming perfumes. They are produced upon an under set of pale colored leaves; the main veins of those leaves form the foot stalks of the floret clusters, which hang like beads of shining gold, and impart a richness to the tree, not easy to describe.

Our brethren in the South boast of their fragrant rows and groves of *Magnolias*. And we of the North, would proudly boast of our odoriferous rows and groves of *Lindens*, if improvers would more generally set them out.

Tilia Americana, is the American Linden tree. It is of a more robust growth and habit, and attains a larger size than the European species. In form, foliage and stature, it is one of the handsomest specimens of an ornamental tree. Its blooms are also yellow and slightly perfumed. These two and all the other species of Linden, should be set in every large arboral embellishment. They flourish upon various kinds of soil, and in different exposures.

BEEF EATING FLYTRAP.

BY S. B.

I have been interested in the discussion on the *Dionæa*, and cannot help saying that my opinion is against both the *Hearth and Home* and the *Gardener's Monthly* claiming originality for the fact that the *Venus Flytrap* will eat beef. Many years ago Mr. Knight, of the firm of Knight and Perry, of the King's Road, Chelsea, informed me that he had in times past experimented with beef instead of insects on the leaves of these curious plants, and that the plant not only seemed to consume the beef, but all these

plants were more healthy and vigorous than those not so fed. He was of the opinion that the object of the plant in closing on the insect was the eating of it as food, just as the correspondent of the *Monthly* supposed, in the article under dispute. Whether Mr. Knight published the fact or not I do not know. He was not much of a contributor to the magazines, but he must have told others, as it was one of the things he delighted to speak of. However, whether or not he published the fact, his word would be sufficient with all who knew how honorably accurate he always was in all things. In this connection I may mention a domestic incident in his life, which though somewhat gossip can do no harm, as all of the parties are now in the spirit land. Mr. K. was employed as gardener with a wealthy country squire, for whom he had a great attachment. His employer had an only daughter, who set her heart on the young gardener. I suppose she must have supposed the attachment mutual, or at least that an avowal on her part would not be ill received, for she wrote a letter, and managed to have it conveyed to Knight, in which the condition of her heart was plainly revealed. It was a delicate position to be placed in. Many a fellow with less brain or integrity would have concealed the prize so temptingly within reach, and an elopement and misery resulted in due course.—New York *Ledgers*, *et ceteras*, notwithstanding. His common sense, and sense of what was due to a kind and loving parent, induced him to hand the letter at the proper time and moment to the young lady's father. He was at first indignant, but admiring the course of the young gardener, for whose general intelligence he had already conceived a respect, he told him if he really loved his daughter he would place no impediment in his way. Knight avowed his feelings of esteem for her, but he had made up his mind to get through life by his own exertions, and for one educated in the lap of luxury to be the wife of a gardener would never do; and to live on a wife's fortune would be opposed to his own manly notions of independence. The result of this conversation however was, that some time after this Knight married his employer's daughter, but on his own request received no money with her; but the father bought the beautiful piece of ground known as the King's Road, and erected the magnificent greenhouses thereon, which was, and still is under Veitch, the model plant nursery of England. On this the couple started

out into life, to work out their own living and happiness together; and all who had the pleasure of knowing Joseph and Mary Knight, know how successfully they accomplished both. Such instances are rare; but this one bears telling, though of such a private nature, as it shows that a spice of romance, which the young are apt to delight in, need not necessarily be associated with crooked ways; but that strict honor and integrity either in love or business, is as likely to bring things to a successful issue, as the mean and tricky courses so often pursued.

Pardon this digression, which has been suggested by the *Dionæa* topic, and if not horticultural enough for your readers, cut it out,—I shall feel no offence.

WINTER TREATMENT OF TENDER THINGS.

BY GARDENER, BALTIMORE, MD.

You often ask for notes about little things, and though it may not be new to gardeners, others may like to know that old plants of some things are not the best things to keep over the winter. I have seen many people go to much trouble to take up *Coleus*, *Verbenas*, and other like things, but they don't do much good. I like to take cuttings of all these things in August or September, and get fair rooted plants before frost. These do a great deal better than the old things. I could never keep *Torenia Asiatica* over winter, till we struck off the young plants. The old ones had work to live. I have only a warm greenhouse to keep things over, and those who have a better place can perhaps do better with these things; but for those who like me, have no great convenience, I would say, strike young plants and let the old things go.

NOTES ON MAPLES.

BY MR. H. C. BEARDSLEE, PAINEVILLE, O.

I see in your number for June, a commendation of Red Maple (*Acer rubrum*) as an ornamental tree. Its form is compact and rounded, and its foliage dense, more so than those of any native Maple. It is quite numerously represented among the shade trees of this village, and I notice this year a peculiarity, which if often repeated, will detract from its merits. It is one of the earliest trees in bloom, and its seeds (*samaræ*) are matured and fall by June 1st. This year many of these trees have matured immense crops of seed, and the growth and ripening of

the seed have exhausted the vitality of the trees, and the foliage is very scanty and has a sickly appearance. They will scarcely regain their health and vigor this season. I do not remember having noticed this occurrence before.

Acer nigrum which here grows upon the alluvial river bottoms in company with *Acer saccharinum*, is planted here sparingly, and differs in foliage from any other species. The leaves are longer, of a darker and richer green, and have the lateral lobes flexed downwards.

Acer dasycarpum is native to our alluvial bottoms. Why is it not more frequently planted?

[*Acer dasycarpum* is the silver, white or soft maple of the nursery catalogues. It is a very rapid grower, and much used in the east as a street tree. It grows too fast for a permanent tree, as in time it shades only the roof of the house at mid-day. Hence the practice of cutting it back had to be inaugurated in the large cities, which eventually destroys the trees, and has been one of the chief causes of the disappearance of trees from sidewalks in many places.]

Acer nigrum is very distinct from the common sugar maple. In addition to the differences pointed out by our correspondent, the under surface of the leaf is nearly of the same tint of green as the upper, while the *Acer saccharinum* has a shade of grey. The lobes of the black sugar are also blunter than those of the common or more eastern form. Our cultivated plants of *A. nigrum* do not fade away in the fall to the beautiful crimson of the other species, but the shade in summer is much more dense and grateful.

The fact in reference to *A. rubrum* is very interesting. We should be glad if our correspondents would more frequently send us such facts, which they must often observe. There are good traits and bad ones in every thing. It is necessary to good gardening to know all.—Ed.]

BOTANICAL EXPLORATIONS IN EAST TENNESSEE.

BY DR. C. C. PARRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

In accordance with instructions, I have made, since the 1st of June, a brief botanical exploration of the high mountain region of East Tennessee, bordering on the boundary line dividing this State from North Carolina, traveling the usual southwestern route, by the Virginia valley, into East Tennessee. I left the railroad at Carter station, about twenty miles south of the State

line, and proceeded thence by a rough mountain road, crossing the Watauga River to Elizabethtown, the county seat of Carter County. This place, located in an irregular alluvial basin on the Doe River, just above its junction with the Watauga, is surrounded by moderately high wooded mountains, the clear rapid mountain stream on which it is located affording excellent water power, which is only partially improved. From this point, following up the increasingly rugged and contracted valley of Doe River, which at the time was swollen by recent rains to the size of a formidable stream, difficult of crossing by the ordinary method of fording, the next settlement reached was Doe River, seven miles distant, up to which point a branch railroad has been graded and prepared for track-laying, intended eventually to pass through the mountains on the east to connect with the railroad system of North Carolina and the Atlantic coast. Twelve miles further above this point I reached the upper settlement of this section, directly adjoining the high mountain range of the Roan and Iron Mountains, dividing Tennessee from North Carolina. At Elizabethtown I secured the services of Mr. George Emmert as guide, who, in addition to an intimate knowledge of the whole country adjoining, is possessed of the tact and ingenuity peculiar to mountaineers in all countries. Never at a loss for a trail, always ready to meet emergencies, he was just the companion a stranger to the country would most desire on such a trip.

In making the principal ascent of Roan Mountain, we followed up one of the numerous branches into which Doe River divides, passing through a dense growth of hard-wood forests, consisting mainly of sugar maple, tulip tree, beech, oak, birch, chestnut and linden, interspersed with occasional growths of wild cherry, magnolia and horse-chestnut. The undergrowth presented a dense mass of shrubbery, including the kalmia laurel, rhododendron, azalea, oil nut (*pyrularia*.) and other forms common to more northern forests. The rich loamy and clay soil was everywhere saturated with moisture, resulting from recent rains. Only rarely, and at long intervals, was there any exposure of granitic rocks, which, as well as the decayed fallen trunks of trees, were densely covered with mosses and foliaceous lichens. The clear streams dashed over rocky beds, with crystal pools along their course, from which the guide took out, in an hour's time, a fine string of mountain trout.

In making the steeper ascents directly at the base of the mountain ridge, there was a gradual dwarfing of the forest growth, in which the ordinary species, so abundant below, give place to a nearly exclusive preponderance of birch, which was continuous in its dwarfed aspects to the summit gap. Not till reaching this point, fully five thousand feet above the sea level, were we regaled with more than a passing glimpse of the range which we were so laboriously ascending. Here, however, the view opens on the smooth glassy slopes known by the country people under the significant name of "Mountain Balds." These grassy or bushy slopes are interspersed here and there by dark groves of balsam and spruce, which serve to give a pleasant variety to the landscape. From the smooth rounded knolls, a magnificent view is afforded of the surrounding country. In order to give time to a more thorough examination of the vegetation of the high summit range, we made camp for a night on the divide, taking shelter in a dense grove of balsam firs. Fortunately for us, the weather was unusually serene and pleasant. The next day we strolled leisurely over the different swells composing the main ridge, mounting to the highest rocky point, which, according to the accurate measurements of Professor Juyot, reached an elevation of six thousand two hundred and thirty-eight feet above the sea, falling but little below the highest summits in the Allegheny range.

This "beautiful Roan Mountain," so characterized by early travelers, has been a favorite resort of botanists since the time Michaux's early explorations in the last century. It was visited by the distinguished American botanist, Professor Gray of Cambridge, in 1841, who noted, with his accustomed thoroughness, its botanical features. Being six weeks earlier in the season, I was able to add a few of the more forward spring plants to Dr. Gray's list, including among others, the charming fringed phacelia, (*Phacelia fimbriata*, Michx.) Now, as in the time of these early travelers, these bald, grassy exposures are in extensive use for summer pasturage; and at the season of our visit, June 8 and 9, they were just being occupied for that purpose by the adjoining country people with their herds of cattle and small droves of breeding horses. Here the continuously cool atmosphere, abundance of nutritious grasses, and clear, cool springs and rivulets of water, comprise everything to be desired in making up a quadrupedal paradise.

The lateness of the season may be inferred from the fact that strawberries were in bloom June 9, and the fruit does not ripen till the latter part of July.

We were fortunate, after enjoying a few hours of fine weather and extensive prospect, to accomplish the descent just in time to escape one of those drenching rains so common on these high exposures.

In the lower valley there is a considerable scope of tillable land composed of a rich soil similar in its general character to the celebrated Virginia Valley. It is well adapted to wheat, corn, grass and ordinary field crops, the differences of soil and exposure indicating the special adaptation to particular crops. Grass is most luxuriant on limestone soils, but in the more broken districts is apt to be killed by the prolonged summer heat. In approaching the higher mountains the valleys contract, and steep timbered ridges extend to the edge of the swift-flowing watercourses. Here the farming lands are limited to small basins, significantly termed "coves," and occupy the less abrupt slopes which have been cleared of the natural forests. As the elevation increases there is greater coolness of the atmosphere, more frequent rains, and the seasons are favorable to the hardier varieties of small grain, potatoes and northern fruits. In these mountain districts cattle-raising is the prominent branch of industry, and a system of roving pasturage is adopted as the season advances, gradually ascending to the higher grassy summits of the "bald mountains," to descend again to the low-lands with the recurrence of frost and snow.

Hogs, though of a very inferior breed, are raised at little expense, being allowed to run through the woods, where they feed on wild roots, and later in the fall to fatten on acorn mast, chestnuts and beech nuts.

The country throughout is well adapted to the growth of fruit, particularly apples, which everywhere look thrifty and product largely, the surplus yield, for want of a convenient market, being generally distilled into apple brandy. Wild fruits and nuts are abundant in their season, and add their material attractions to the picturesque landscape.

It is the inexhaustible timber product of this region that will eventually constitute the main source of its wealth. Nowhere else are to be found such magnificent forests of sugar maple, beech, chestnut, tulip tree, oak, birch, &c. Mile

after mile in almost wearisome succession tower aloft these monarchs of the woods. Pine, hemlock and cedar occur mostly in scattered groves, indicating generally a sandstone substratum. Locust trees abound in certain sections, and the wild cherry attains an unusual size. A tree of the latter was pointed out to me having a diameter at base of nearly five feet, and a height of not less than one hundred feet; still thrifty and apparently sound to the heart.

In this connection, the prevalence of hardwood growth, together with abundant water-power, and extensive beds of iron ore, plainly indicate the direction which future industry will take, aided by the construction of railroads, in developing a country distinguished for salubrity, beautiful scenery, and all desirable accessories of civilized life.

ABOUT HERBARIUMS.

BY "CROWFOOT," BOSTON, MASS.

I notice frequently in Agricultural journals directions for drying specimens and making up a Herbarium, which do not accord with my experience as being the best. I am pleased to see so much attention given to Herbariums. People may be good gardeners without all this trouble, and ladies and gentlemen can perhaps enjoy trees and flowers without knowing much of botany; but the knowledge and enjoyment is much heightened, when a little is known of these things.

But first about botany, I hope to be pardoned for saying that is a little too learned as it is taught in the schools. No sooner does a young person exhibit a taste for the study than he is set at once to learn a lot of hard names, which very soon tires him. I do not profess to be a first class botanist, having studied more for amusement than for professional eminence, and I believe I have only kept an affection for the study, by having cut loose from the plan of the schools.

I would recommend to most young persons desirous of learning botany to first make a collection of plants; dry everything that can be got, without regard to much book knowledge.

To dry plants the best way is to get a screw press such as bookbinders use. I have read of objections to this. It is said, as the plants dry they shrink and get loose between the papers; and they say if boards are used with weights on the top, as the plants dry the weights sink, and

keep the plants pressed firm. This looks well, but in practice it is of no account. I have tried both ways, and under the screw press the plants don't shrink as supposed, but make as good specimens as one can want. The advantage is that it saves time, and the student will find that he will want all the time he can get, though he starts with the feeling that botany is to fill up his time. 48 hours a day would not be too much for him when once thoroughly interested. For this purpose of time saving too, it will be found best to sew about a dozen sheets of paper together as dryers to place the specimens between.

To have good specimens they should be changed often, at least once a day, for two or three days,—and if the plants are juicy, twice. They can be changed very rapidly, if thick masses of dryers are used as described. Turn up the screw and take off the upper paper exposing the specimen. Then lay a dry paper on the top, take off and turn over rapidly. The specimen then lies on the dry paper. In taking off the upper, now the damp paper, keep the finger on the base of the specimen, as it may stick to the upper paper. In this way twenty or thirty sheets of specimens can be transferred to dry papers in a minute, without rumpling the most delicate petal or leaf. When they are dry enough, which will be when they are stiff enough to be held out horizontally without bending much, they will be ready for single sheets.

About 20 in. by 16 is a very good size for Herbarium paper, any good, rather stiff paper will do; and if a little expense is not so much an object as a nice Herbarium the paper may be doubled for each suite of specimens as the covers for a book. I might say that paper for dryers is best made of wool instead of cotton, blotting paper in fact.

When specimens are put away, write on a piece of paper the locality and date, leaving space for name or other remarks.

At this early stage however, I do not use good herbarium paper for the specimens, but common newspapers. As fast as the names can be found which it is a great help to a young botanist, if some one can be found to do it for him—notwithstanding the supposed benefit of leaving him to puzzle them out for himself,—find the orders by the botanical books to which they belong, and write them on the left hand lower corner of the sheet. The name can be written on the right hand corner. As fast as the speci-

mens dry, place them in a square pile in the corner of the study, and keep a board which can be readily lifted off or on to cover them with. I should recommend a young student to collect all the plants possible of a locality during one season and dry them, before caring to examine them with a view to names. Possibly a botanist may be found to name them before spring; but if not, familiarity with the kinds which are nearest alike will give much help when trying to name them from the book descriptions.

In forming the Herbarium, though I shall be laughed at perhaps by men eminent in science, I prefer the alphabetical arrangement for the genera, although I would place the species together in the orders of their resemblances. In the Butter Cup family, *Ranunculaceæ*. I do not start with *Clematis*, as the book would, but with *Aconitum*, *Actæa*, *Adonis*, *Anemone*, and so on. The papers laid one over another in the packages, as the alphabet runs. The whole of one genus is placed under one cover, and the name as I have said on the right hand corner. By this plan any genus can be instantly referred to.

The names of the orders on the left hand corner are for convenience in first assorting. All the orders in A. B. C. and so on, can be easily got together, by reference to these corner names.

For collecting specimens a tin box, made like a book is a very good thing. Or a portfolio into which the specimens can be placed between papers as they are gathered. But it often happens that one wants specimens when neither of these conveniences are to hand. In this case a piece of newspaper does very well. First roll the specimen lightly in a piece of dry paper, then another, and then dip the whole hastily in water, so as barely to give time for the interior paper to wet, then after a few minutes wrap the whole in another dry paper, and they will keep in fair condition thus for several days.

In collecting specimens, try to have some with seed vessels nearly ripe, as well as flowering. It is a fault of many good herbariums to have flowers only.

It is to be hoped that the taste for Herbariums will increase. To all classes it is of great advantage. To the gardener it should be essential. It is impossible to keep all one's knowledge of plants in the head,—a Herbarium is excellent for reference. But still more does it seem to me of use to the nurseryman whose great gain is

often in establishing the identity of a plant in dispute. It seems to me that a Herbarium should be one of the essentials in every nursery counting house.

In every parlor a beautifully arranged and preserved Herbarium would be one of the best means of intellectual entertainment for winter evenings: pasted in neatly and in elegant book bindings, they would be superior to any picture book. All young children like collecting and arranging plants in this way, and they look back on them in after years when well taken care of, with a satisfaction nothing that I have seen ever gave. It lends also a pleasure to their future years, not only by the associations which the flowers themselves call up, when met with as occasion offers; but by the intelligence which such knowledge confers; and should any loved ones depart from us, the treasure such a collection bestows on those left behind cannot be expressed. A collection I have by a dear daughter now long lost to me, which often recalls the incidents of many a long walk together, I would part with all rather than this.

Lastly, Herbarium making is an excellent amusement for young people. They will have some excitement beyond what home and book study affords. If rational and profitable ones are not afforded they take up with vicious ones too often. Here is an opening at once, innocent and instructive,—health giving and useful, which one cannot too much reflect on.

Thus, Mr. Editor, I give you my "ideas of Herborizing." Though a reader from the start, I have ventured no contribution before; but if it suits you I shall be pleased, not only for the good it may do to a study which interests me,—but as an offering to a magazine from which I have derived so much instruction.

LATE PEAS.

BY L., BLOOMINGTON, ILLS.

In your remarks for the Vegetable Garden for last month, you recommend for a late Pea crop the Marrowfat. The term appears so general, including the Victoria, growing from 6 to 8 feet high, that I am sure you will excuse me if I point out my experience, and if I am wrong I wish to be corrected. It has been my invariable custom to recommend for the last sowing the early varieties. These mature quick, and give a goodly crop before the early frost, or what is

as bad, the mildew to which late varieties are so subject.

Last Fall I sowed, last week in July, the Advancer and Little Gem, and last of September and beginning of October I had as fine Peas as at any time in the season. Had I taken indis-

criminately Marrow Peas, from a Seed Store, where the assistants are not at all practical, it would have been as likely for them to have given me the Victoria, or any other late variety, and my time, labor and expense would have been thrown away.

EDITORIAL.

VARYING COLORS IN THE SAME PLANT.

In the *Bulletin of the Torrey Botanical Club of New York*, Mr. I. H. Hall gives some facts which render it highly probable that the same plants of *Trillium erectum* in a wild state, some seasons produce white and sometimes purple flowers. We have seen an instance of the same change in *Wisteria sinensis* this year, which astonished us beyond measure. Some twelve years ago we imported from Germany a white Chinese *Wisteria*. Pointing it out to Mr. John Sherwood, he remarked that he had imported it a year or so before, and flowered it, but it proved only a faded blue and worthless. On this we neglected it, till some years afterwards it flowered and proved the most clear snow white imaginable. It was then trained up to a stake and taken care of, flowering profusely every year since. Early in July our plants took a notion to produce a profuse second crop of flowers. On the white plant, a bunch of pale purple flowers came out. We traced this however to a shoot which came from just below the surface of the ground, and supposed probably the original plant had been grafted on the blue one, and this was part of the stock; but eventually flowers came from the main head which were not white, but of a faded purple just as Mr. Sherwood had found years before.

We regard these facts in reference to the changes in color in these plants as of great value in philosophical botany. Seeds we know bring a changed progeny, but it has been the fashion to assume when changes occur independently of seed, that it is owing to bud grafting, or some other process which no one well understands. Thus the Laburnum usually with yellow flowers has been known to produce a dark one known as

Cytisus Adami, and this is supposed to have originated from budding into the system at some remote period past. We have never seen the necessity of going out of the regular way to account for these things. The nectarine originated from a branch which sprang off from a peach without the intervention of hybridization by bud, graft or seed and why may not other things.

We know now by careful modern observation, that the seeds of plants do not follow the supposed old law of "like producing like," though every care be taken to prevent cross fertilization, as an invariable rule. There is also a law of evolutions of form quite independent of sexual influences.

These facts from *Trillium* and *Wisteria* strongly indicate the probability that the law of change is not wholly dependent on seed agency, but may operate through the many other ways Nature employs to reproduce the individual.

BELGIAN AZALEAS.

(See Frontispiece.)

We introduce in this number to our readers a tribe of plants which, though mainly of their own country, not one in a hundred knows any thing about. Simply because it has chiefly been through the efforts of Belgian gardeners that they have been improved as they are, do they receive the name of *Belgian Azaleas*. They are made up of four species, which have been intercrossed together, only one of which, *Azalea pontica*, grows in Asiatic Turkey; the other three, *Azalea viscosa*, *A. calendulacea*, and *A. nudiflora*, are natives of the American continent.

The name *Azalea* is Greek, and signifies *dry*, and was given to this genus by Linnæus, most

probably from the brittle nature of the wood which snaps as easily as a dry stick. The one which grows along the shores of the Hellespont, is a yellow flowered species, and has much relationship to the *A. calendulacea* of the Georgia Hills. It has a somewhat viscid character, which ours has not. Our *A. viscosa* is remarkably clammy, and here we have a coincident character; but the difference between these two is in the color and fragrance. Our *A. viscosa* is remarkably sweet, and is remarkable in its wild state for the constancy with which it remains unvaryingly white. The *A. nudiflora*, the most common azalea of northern woods, has flowers of various shades between rose and white, and the Georgian between crimson and orange; but the *A. viscosa* retains its pure waxy white sweet flowers, however much it may change its leaves or general form.

The first hybrids became known about fifty or sixty years ago, and they keep improving in beauty every year. The best of them are selected as in regular florist's flowers, and preserved by grafting, the same as we have before noted in the *Rhododendron*. These are the named varieties of Nurserymen's catalogues. Those which we have selected for our illustration are unnamed seedlings, and are there drawn to a scale one half less than the natural size.

The cultivation of these plants, to have the best success, should be as we have recommended for *Rhododendron*. Indeed there has been much dispute amongst botanists whether there is any distinction worthy of scientific noting between the two. They would call them all *Rhododendrons*. The *Azalea* is not evergreen, and has only five stamens; but the *Rhododendron* is evergreen, and has ten of these male organs. These characters are inconsistent, and if there were no others, there might be ground for uniting the genera; but where any one without botanical knowledge can readily distinguish genera, it would seem rather the fault of the science, and its idea of genera, that no distinction can be made, than that no true distinction can be found.

AMERICAN GARDENING.

We read with some surprise, the remarks on American gardening embodied in a letter from Mr. Williams of the *Horticulturist* to the *London Gardener's Weekly*. Mr. Williams believes that there is no such thing as Horticulture in America outside of the one word *profit*. The taste, he

says, is "mostly confined to a few ladies, who plant geraniums, &c.—the lords of creation passing to look on the orchard or small fruit plantation." If we believed this we should close out the *Gardener's Monthly*. "Gardening for profit" is rather a branch of agriculture than horticulture. It is a legitimate subject in a horticultural journal as an incidental; but most assuredly it more properly belongs to an agricultural journal than to ours.

But we are not prepared to thus resign all we have been striving for. We have steadily kept in view the progress of Horticulture as an element of taste and refinement, and a means of diffusing a love of Nature and high order of horticultural knowledge. We know that most of our readers are with us on this account, and we have never felt that in order to make a magazine successful, it was absolutely essential to feel that we were writing for children and ignoramuses as Mr. Williams says is American practice.

We believe that Mr. Williams has been deceived by a wrong impression of the actual state of affairs in England. The "trade" and the "practical gardeners" no more support horticultural journals there than here. There is the same short sightedness as to their true interest everywhere. We do not know, of course; but we have a strong impression that we have as many of these, and possibly as many subscribers as any of them—the *Gardener's Chronicle* excepted—and this probably derives the most of its list from scientific men who are not gardeners at all. We have seen this periodical in many a parlor whose owner did not own a single pot in back yard or window. We think Mr. Williams has entirely misapprehended the contrast between American and English horticulture, to our injury. We have not the beautiful gardens or greenhouses of Europe. It is really better for the people as a whole, that we have not; but we must protest against the idea, that so far as our readers are concerned, the "almighty dollar" is the beginning and end of their horticultural life. Absolute love for art and nature, in proportion to wealth and population, we regard as even greater here than in Europe.

We have never been slow to own up to disagreeable truths. But here we believe a position is assigned to us we do not deserve to occupy before the world.

CEMETERY AND CEMETERY PLANTS.

In reading our notes on cemeteries, after the article appeared, one error occurs which requires correction. The area of Laurel Hill is now over two hundred and fifty acres, and not one hundred and fifty as before stated.

We propose here to give a few hints as to the best cemetery plants to use. And, first, it is well to observe that if rare plants are expected to thrive, the grounds must be kept warm by a liberal use of nurse trees. The thick planting of Laurel Hill so tempers the atmosphere, that scores of things flourish here which will do well in very few places about this city. The thermometer falls as low here as anywhere,—it is not that, but the protection from winds keeps the sap from drying out. But this is a matter which has been often explained to our readers, and we need not dwell on it here.

The Holly is one of the best cemetery plants. Its associations with past history gives it a value independently of its own merits. There can be nothing more beautiful than its coral red berries, mixed so freely with its light green leaves, when snow is on the ground and all else desolate. Struggling successfully as it were against the destructive elements of winter, it is a fit type of that immortality with which the living love to clothe the memory of departed friends. In a sheltered cemetery the European will probably stand. But no matter if it does not, for the American is quite as beautiful. It makes a beautiful hedge. Mr. Smith's own family lot is surrounded by one. And the Sweet Magnolia, *M. glauca*, is another capital thing. It seldom grows more than twenty feet high, and is much more healthy in high ground, such as we generally select for burial purposes, than when in its own native swamps, where it is evidently, as we have before shown, only because its seeds do not germinate well elsewhere. The delicious fragrance it throws around cannot be equaled by anything except perhaps Honeysuckle, with which all cemeteries should abound. The best position for such vines as these is over trees,—and especially over evergreen trees. An arborvitæ is a capital parent to support it. Of course the tree will be somewhat injured by the vine; but in such cases the tree must be secondary to the effect to be produced. Trellises partly arched so as to make a shaded seat over a grave, cannot be covered with anything prettier than Honeysuckles.

Of all the climbing plants for cemetery purposes, nothing excels the Ivy in interest. In light or shade, in poor soils or rich, creeping over the ground or over the rocks, covering walls or dead trees; and always the same living green.

One of the best things that we saw at Laurel, were some chairs of stone made to imitate rustic woodwork. All around and over them Ivy clung. How invitingly cool seemed this verdant seat! But the effect of it as it crept over the stained glass windows of the mortuary chapel was unique. Shelley says that around his Fairy Queen there was wondrous beauty.

"Those lines of rainbow light
Are like the moonbeams, when they fall
Through some cathedral window, but the tints
Are such as may not find comparison on earth."

We know nothing of the moonbeams,—but the sun light shining through these Ivy covered glass windows, did not seem to make the "comparison on earth" so very impossible a thing. Every one who read the *Horticulturist*, when Mr. Smith was editor, remembers how enthusiastically the praises of the Ivy were always sung. No one who sees it here will wonder at it. But it must be remembered that shelter from cold winds is the Ivy's first stipulation. Without this, we should often have letters like this short one from Boston: "Pity the Ivy isn't hardy here. There are numerous varieties—though some try to make species of them—all are good; as a rule, the smallest leaved kinds are the hardiest."

Of little known trees—trees of moderate growth suitable for cemeteries—we might give the following as a full list: Cork-barked Maple, Tartarian Maple, Spanish Maple, Cut-leaved Alder, English Alder, Heart-leaved Alder, Japan or Sea Alder. *Æsculus glaber* or dwarf yellow Horse Chestnut, Lyon's Horse Chestnut, red flowered Horse Chestnut; Japan Catalpa; Hawthorns in all the numerous species and varieties; English Bird and Weeping cherries; Weeping Ashes and Weeping Sophoras should be placed almost No. 1 on the list. The Manna Ash *Fraxinus ornus*, is a beautiful thing. The Snow drop trees, *Halesia tetraptera* and *H. diptera*, are admirable. Dr. Asa Gray tells us he thinks the last named not hardy at Boston. *Kolreuteria paniculata* a pretty Japan tree, which may perhaps grow too large in time; but it will probably keep within 30 or 40 ft. The Larch is a pretty good tree; though growing tall it does not spread much, yet we should plant them only where they could be

cut down without a pang when the time came. Of Magnolias, we have specially commended the glauca; but the *M. tripetala* is one of the most indispensable. *M. macrophylla* is another good thing. The Chinese white and Asiatic purple and its varieties, of course.

The Carolina Poplars are excellent nurse trees; soon however to be cut away. It is not pleasant to overlook the oaks, but they grow too tall; the Turkey variety however, gets large so slowly, we should incline to include it. The Ginkgo is another thing we saw at Laurel Hill, hardly to be spared from the list,—yet in time it grows very large; but it can be kept down by pruning. The Mountain Ash is a very nice thing; but the climate south of Philadelphia is too hot for it.

In the way of deciduous shrubs we need not give any list; for any or all are well adapted. They are indeed the best of all things for the filling up of the grounds, yet we must not go by them without specially noting the fitness of the Tennessee Buckeye or Dwarf Horse Chestnut, (*Pavia macrostachya*), it is certainly the best. It can be trained up to a single stem for six or eight feet if desired, so as to let grass grow under it, when it makes an umbrella like head. This also applies in some measure to the strawberry tree *Euonymus europæus*, and *E. atropurpurea*; as also to the *Chionanthus virginicus* or White Fringe.

In evergreen small trees and shrubs, we have

now a pretty full list; though in most country cemeteries, we find very little except Irish Junipers and Siberian Arborvitæ,—both very good in their way—the last perhaps indispensable. Amongst other arborvitæ the common American is excellent for rapid growth and low price; and the new Heath-leaved is a very pretty summer ornament,—looking purple in winter. The Norway and White Spruces grow tall when left to themselves; but can always be kept within twenty feet, as can any of the pines for that matter. They all bear the shears as well as the commonest hedge plant. The Tree Box is the favorite of all dwarf evergreens at Laurel Hill, and the pretty specimens here deserved well the favor they received. All the following are also good: Mahonia, Pyracanthus, Japan Cedar, Japan Euonymus in Philadelphia and southward, Juniperus squamata and other Junipers; Kalmias and Rhododendrons,—even the ponticum lives out in the tree sheltered groves of Laurel Hill. Mountain or Dwarf Pine,—the new Japan Retinisporas and Yuccas.

We have now given, in as brief a manner as possible, a few of the thoughts which occurred to us on our Laurel Hill visit. The subject of cemetery plants is one in which all of us take a warm interest. There must be much in the minds of many about these things which has never taken expression in print; and we shall be glad if we stir up others to write about them.

SCRAPS AND QUERIES.

IMPROVING THE WILD RED RASPBERRY.—Along the northern lakes, the Wild Red Raspberry grows in great luxuriance. It has been named *Rubus strigosus* by Botanists; but is really nothing more than a variety of the *Rubus idæus* of Europe. It has no more claim to the distinction of a species than Franconia or Brinckle's Orange. Some suppose that it would make a good parent for improving from, but we should not look for much more than we now have from it. When the leaves become diseased, as they often do in their native localities, the wood dies down in the winter just as it does in diseased

plants of the named kinds in our gardens. So far there has been however no attempt made to improve it. Only one kind known to be from this so called species, has found a place on our lists. This was Bagley's Perpetual, but it soon went out of favor. We have noted in the wild state there is a great tendency to vary, both in fruit and habit; but none of them that ever approached our finer foreign varieties in flavor. Some like Bagley's Perpetual sucker much; but usually they do not as much as those from the European stock. Belle de Fontenay, Allen and Clark will beat any red native at this practice.

Not even in firmness will the native red equal some of the others. Of foreign parentage, Kirtland, Pearl and Allen are far superior in this respect to our *R. strigosus*.

There are many things assumed about this Wild Raspberry which will not bear the test of examination. It is worth while for those who, under advice, experiment, to start right at the outset.

ERGOT.—C.—“Mr. Meehan will please say what the enclosed seeds are, they grow on a stalk similar to Barley, and to all appearances was like it in plant and ear bearded.”

[This is the common Rye Ergot, a kind of fungus of a very poisonous nature, resembling a distorted grain of the cereal it grows on. It was supposed to be an introduction from Europe; but we recently saw some on a specimen of couch grass (*Triticum caninum*) brought from the Rocky Mountains.]

COMMUNICATIONS.—Remarking to a friend recently that with his talents for observation, he must often see things that would interest the readers of the *Monthly*, he replied that he did not suppose we cared for anything from him. We take the opportunity with pleasure to say that there is not a lover of Horticulture in the whole country that we should not be very glad to hear from. We find often as good ideas from one who has but a single pot in a sitting room, as from those who own their hundreds of acres. Let us hear from all.

LAWN GRASS.—We have found simple green grass—*Poa pratense*, make excellent lawns without any other mixture, or in some sections Rye grass—*Lolium perenne*. Mr. Saunders, in a recent *Horticulturist*, gives the following which he has found to make a good mixture:

- 1 Bush. *Agrostis vulgaris*,
- 2 “ *Poa pratense*,
- 1 Qt. *Phleum pratense*,
- 2 lbs. White Clover.

This is for one acre.

DOUBLE GERANIUMS.—Double flowers have usually some pollen, or else some perfect pistils. It is well known double Petunias are raised in this way. Shirley Hibberd says in a late *Horticulturist*, double Geraniums are raised in the same way. The pollen from a single kind is

used on the pistils of a double one generally which is better than the pollen from a double on a single flower.

OHIO STATE HORTICULTURAL SOCIETY.—On Wednesday and Thursday, August 10th and 11th, as many of the State Society as possible, will visit the orchards and vineyards in the vicinity of Berlin Heights, Ohio—a pretty good time is expected. Further particulars can be had of M. B. Batcham, Painesville, O.

MR. BUIST'S ARTICLE.—L., *Bloomington, Ills.*, says: “We read Mr. Buist's note on Rhododendron with pleasure. Why don't he favor us with similar notes from his long experience, oftener?”

HORTICULTURAL NOTES.—We agree with “L.” in his estimate of some articles which appear in the journals. Yet we think them valuable for other purposes than those aimed at by the writers. They let us know the style of thought prevailing, and we can better then minister to the public wants. We wish we had more of them. Yet we are thankful for his hints, and would be glad to have more of them from his pen.

ARBORETUM AT CHILICOTHE, OHIO.—Rev. J. H. Creighton has for some years been earnestly at work at an arboretum. He has been very successful. We learn that he has six hundred kinds of trees and shrubs at present, doing well.

ROOTS FROM GRAPE STEMS.—J. H., *Chambersburg, Pa.*, writes: “I have a cold vinery, and the vines and fruit are growing well; but the vines seem to me to send out so many air roots. That is the only name I think of for them. They are rootlets that come out at the joints of the old wood. I am afraid they are watered too much. Should I keep the roof whitewashed?”

[Shade makes roots,—we know of no other cause—of course when the disposition to make roots exist, moisture or other elements on which roots love to feed, will give vigor to the attempt. Wood is not so healthy when making these rootlets as otherwise. Frequently badly colored grapes follow the next year. We should give more light instead of less,—and keep a rather dry atmosphere.]

ESPIRITUS SANCTO.—W. W., *Louisville, Ky.*, says: “I would like to know through the *Monthly*, the treatment of an orchid sent to us under the name of *Espiritus Sancto*.”

[This is the *Peristeria elata* of Botanists, and in English “Holy Ghost plant,” from the flower when open resembling the emblematic dove. It is of easy culture, much more so than orchids generally. If the bulb is strong, put it in say a 12 inch pot, in a mixture of moss and broken pots, with a little earth scattered through it. Keep it in a warm greenhouse all winter, and it will probably bloom next August or September in any close greenhouse.]

We have no doubt in your climate it would bloom well if the pot were set out in some partially shady place in summer time.]

CROPS AT ROCHESTER, N. Y.—A correspondent, *July 6th*, writes: We have had but little rain since about the middle of April. Early planted stock has done middling, but all late planted stock has suffered, and much of it will prove an entire loss. Complaint is very general of an entire failure of apple root grafts.

Cherries are the heaviest crop ever known. Strawberries very light, and market poorly supplied. Plums are full, so are apples. Pears light. Peaches bid fair for more than an average crop. Raspberries, black and red, light.

Farm crops are all light; wells are beginning to fail. The river is well up, but small streams in this immediate vicinity are very low.

This season will long be remembered as one of unprecedented drought.

HONEYSUCKLES.—J. J. H., *Newark, N. J.*—“The July number of the *Gardener's Monthly* suggests a few enquiries about Honeysuckles.

1st. Which is right, *L. brachybotria* or *L. brachypoda*?

2d. Are there not two varieties of the above?

3d. Are they varieties of *L. Japonica*?

4th. Are the names *L. Halliana* and *L. Japonica* belonging to the same plant?

5th. Do not the Chinese and Japanese Honeysuckles comprise one branch of the Honeysuckle family?

L. Halliana has proved perfectly hardy with me on a heavy soil since the first winter after planting, being then, for want of mature wood, cut down to the ground.”

[1st. We do not know who is the authority for the name. There is no description in any botanical work that we know of. In garden catalogues it is sometimes one way and sometimes the other. The meaning of the term affords no clue, as the plant answers to both names. As, however, the “shorter growth” of this would be the first to strike one, it is probably *L. brachypoda*.

2d. We know of only one of this section.

3d. Undoubtedly. There is no specific difference that modern botanists would recognize.

4th. “*Halliana*” is but a garden name. It is the original *L. japonica*, and the same that is so common in Chinese pictures. The gold veined one belongs here. It is a more vigorous form of *L. japonica* than the *L. brachypoda*. The anthers are usually pollenless, and even where present seem to be unable to fertilize. The *brachypoda* form is the one which produces seeds.

5th. The Chinese Honeysuckle is *L. flexuosa*, has red purplish stems and veins. They all constitute not only one family of Honeysuckles, but we believe are all forms of one species. *Halliana* is the best flowerer of the three.]

VALUE OF BOTANICAL GARDENS AND COLLECTIONS.—While examining the immensely valuable herbarium of the late Dr. Short of Kentucky, (for whom *Shortia* has been named) in the Philadelphia Academy of Natural Sciences, we found the following memorandum in the handwriting of Dr. Short attached to a specimen of *Zanthoriza apiifolia*:

“ZANTHORIZA APIIFOLIA.

Note. With this specimen plucked in Bartram's Garden in the Spring of 1816, (in company with Abbe Correa, the venerable William Bartram and my friend and fellow student, Dr. Edward Barton, all of whom are long since dead) this collection commenced. C. W. Short, M. D., 1817.”

People often value an institute according to the number of persons who visit it; but often the seeds of usefulness spring up in the most casual way.

The same bush of *Zanthoriza* is still in existence at the Bartram Gardens. One can almost imagine the interest excited in the minds of the young student by the discussion over this curious plant by the two great minds he was in company with.

O'KEEFE, SON & CO., OF ROCHESTER, N. Y.—We notice that the *Richmond Farmer's Gazette* makes some inquiry as to who this firm is? Our publishers also would like to know more than they can find out. Perhaps some of our readers can enlighten them. A firm which advertises so much should be better known.

N. B. They have a few similar enquiries to make about some other gentlemen.

HALE'S EARLY PEACH.—The *Journal of Agriculture*, (St. Louis,) says: "In this region, and especially in locations south of this, the Hale's Early, which was very popular a few years ago, has proved for two years past worthless, on account of its tendency to rot."

Mr. Wm. Parry of Cinnaminson, N. J., had an orchard, all of this, rot so that he abandoned it as not worth "culture;" when lo! for the last two years, amongst the weeds and grass of neglect, he has had wonderful crops.

TRANSPLANTING TREE BOX.—A. W. C., *Plymouth Meeting, Pa.*—In this part of the world, tree box transplants most successfully in April, just before the new growth pushes. As a rule, Box is very easy to transplant. We saw a half dozen, sixty years old, which were moved several miles at that season, and they all grew without any check of any account.

BOOKS, CATALOGUES, &C.

CRANBERRY CULTURE. By J. J. White. Published by Orange, Judd & Co., New York.

This is a full treatise on the subject—more valuable than similar works have been, through the copious illustrations which explain the text.

REPORT OF STATE AGRICULTURAL SOCIETY OF IOWA, FOR 1869. From J. M. Shaffer, Secretary, Des Moines.

We find amongst other interesting things in it, the following about artificial growth of timber:

The last General Assembly passed an act encouraging the growth of timber, fruit and shade trees, &c. The Society has endeavored, by circulars addressed to the several counties, to learn what the effect of this legislation has been. The replies are so indefinite and meagre, that it is impossible to submit to your honorable body even an approximate estimate. The census returns, under the heading "No. of acres planted in timber," in 1868, 19,675 acres, making the entire average of artificial timber in the State, 68,449. The increase between 1864 and 1866 was 28,489 acres, and we have, with the aid of legislation, with the increase of population, and of the number of acres placed under cultivation, 8,814 less of artificial groves between 1868 and 1866, than between 1866 and 1864.

In 1866 the proportions of artificial timber to land enclosed, was 1 in 1870, being a lamentable decrease compared with the preceding two years. At this time there are "lands enclosed" 8,174,920 acres; and "lands under cultivation" 6,109,743 acres, or a total of 14,284,663 acres; the proportion will then be 1 to 208, indicating that the area of artificial timber does not nearly keep pace with the acres placed under cultivation.

Consider the following hurried summary of facts: 1st.—That for a century and a half a large population

has been cutting out, destroying and wasting the best timbered region on the continent, that lying between the Atlantic ocean and the Mississippi River, in preparing and subjugating the soil to cultivation. 2d.—That only the mountain lands have been permitted to reproduce the forest. 3d.—That no systematic effort has been made to supply the waste. 4th.—That so great have been the avarice and thoughtlessness of the people, that they have destroyed the forests, containing in themselves the elements of unbounded wealth, for the infinitely small profits of immediate returns in wheat, corn and other crops. 5th.—That the consumption of timber for building, fencing, implements, railroads, fuel, &c., is increasing with gigantic strides, and the reproduction is going on at a snail's pace. 6th.—That the States of Maine, Michigan, Wisconsin, Minnesota and Florida are alone among the States exporting any appreciable amount of timber more than they need. 7th.—That west of these vast belts of timber that were, stretch out an untimbered surface of 1,400,000 square miles. 8th.—That the destitute surface exceeds by more than 400,000 square miles the whole of the once heavily timbered regions east of the Mississippi. 9th.—That the new States soon to be admitted—New Mexico, Colorado, Wyoming, Montana, Idaho and Dakota have but a small supply, not nearly sufficient to meet the demands of a population equal to Ohio, Indiana or Illinois.

REAL ESTATE CATALOGUE OF DANIEL M. FOX & SON, FOR JULY, 1870.

This firm, of which the Mayor of Philadelphia is Senior member, stands very high amongst the business houses of that city. The present catalogue embraces descriptions of one hundred and seventy properties, from which any one anxious to invest in Philadelphia real estate, can certainly find honest guidance.

HARRISON'S "FLAVORING EXTRACTS." New Edition. By A. W. Harrison, Perfumer, Philada.

This contains amongst many other recipes, the latest improvements in Chicken and Lobster Salads, and other good things.

ARCHIVES OF SCIENCE.

This is to be a new journal devoted to science, "devoted especially to original researches in Vermont," to be issued quarterly from New-

port, Vermont, and to be edited by Drs. Hinman and J. M. Currier at \$2 50 per year, of 256 pages. The first number was to appear in July.

THE WESTERN GARDENER is the title of a new horticultural journal to be published on the 1st of September, at Leavenworth, Kansas. It will be edited by Dr. Houseley and Mr. S. W. Lockwood.

DOMESTIC INTELLIGENCE.

LEGEND OF THE AMERICAN HOLLY.—J. Parrish Steele in the *Journal of Horticulture*, gives the following account of the American Holly:

Long, long ago, there dwelt in the great South country a mighty Indian chief of the Chickasaws, by the name of Sheka. He had a daughter whose name was Colia; a word that may have meant as nimble as a fawn; or it may have meant as graceful as a fairy, or it may have meant as beautiful as the morning—but no matter, Colia was her name.

Colia was the pride of her nation; idolized by her father, the chieftain, more than idolized by the young braves, and loved by all who knew her. To accomplish something that would give her pleasure, was the greatest ambition of both old and young—more especially the latter—and many were the deeds of daring marked upon the lodge-skins that, but for her sake, would never have found a legitimate record there.

As in the case with all heroines, in Indian story, Colia had a passionate suitor, and that suitor had a bitter rival. Sikolas, the Eagle, wooed her because he loved her dearly, and won her because he was worthy of her hand. Cohamma the Red Fox, also loved her, and pressed his suit; but as is sometimes the case with even good looking young fellows who are not Indians, he was unsuccessful. A la the lamented Artemus Ward, "as a courtist he was not a success," Sikolas was. He wedded the fair daughter of the forest, and Cohamma vowed vengeance.

Ere a moon had waxed and waned, Cohamma entered the wigwam of Sikolas, at the still hour of night, and found him reposing calmly in the

arms of his loving bride. The sight of so much happiness in the possession of his hated rival was more than he could bear, and so without ceremony he sent his knife to find a resting place in the hearts of the unsuspecting sleepers.

The morrow was a sad day to the Chickasaws. Heaven put on her most angry frown, and sent bolts of fire hissing through the forests on the trail of the murderer, and earth wept a fountain of tears over the loss of her cherished ones. From points at either side of Sikolas' wigwam these tears gushed forth in their crystal purity, and have continued to flow up to the present time, and doubtless will continue to flow for all time to come.

The Chickasaws assembled, and as was their custom, buried the unfortunate couple where they lay in wigwam, between the springs. But the Great Spirit would not let them rest forever hidden from the sight of their friends; he called them forth, two beautiful trees, to wave their graceful branches and glossy leaves above the fountains, and send their offspring to grow over and gladden all the land of the Chickasaws.

When the long knives came to the country, the charming home of Sikolas and Colia attracted their attention, and they tarried at it, and giving it, in honor of its beautiful occupants, the name of Holly Springs.

Strange and unreasonable as this legend may seem, it is said that the Indians believed it as fully as does the Mussulman believe Mahomet to be the true prophet. Its site is at the town of Holly Springs in Mississippi.

PAINESVILLE NURSERIES.—The *Painesville Telegraph* says: We feel safe in saying, Storrs, Harrison & Co have one of the largest and best nurseries in the West. They have completed the last fall, two more propagating houses, each 80 by 12 feet, and 9 feet high, and between them a splendid green or show house. This last is 80 feet long, 25 feet wide and 14 feet high, and is filled with innumerable flowering plants of all kinds. The center is provided with banks of shelves rising to the very peak, and filled with such beauty as an establishment of this kind alone can furnish. The greenhouse with its two adjoining propagating houses cover a space of 50 by 118 feet.

In the rear of these is a new two story building, 60 by 14 feet, in which are the shop, potting room, furnaces, cisterns, coal room, etc. There is also another propagating house 50 by 12 feet; also adjoining this, a cold frame, 50 by 12 feet. They have four other propagating and green houses, 100 by 12 feet; still another, 30 by 13 feet, for rooting evergreen plants.

They now have one hundred acres of nursery stock, and propose to add fifty acres more this spring. They are making a specialty of the chestnut. Last year they grew 250,000 young chestnuts, and propose to raise at least 750,000 this year, as they will plant 150 bushels of chestnuts. They have 500,000 evergreens of all kinds and sizes.

PEAR ORCHARDS IN OHIO.—The *Northwestern Farmer* says: The most promising and beautiful pear orchard that I have yet seen in this State, is that of A Fahnestock, Esq., near the mouth of the Maumee River, five or six miles below Toledo. Mr. Fahnestock, being an old nurseryman and pomologist, selected his location, soil and varieties with much care, according to the best information he could gather at the time. His orchard consists of ten acres of strong clay loam, which was well underdrained and subsoiled; then planted (seven years ago) with a thousand standard trees, which have been well cultivated and cared for, and are now of fine size and shape, with scarcely a failure or defective tree in the whole lot, and many of them have commenced bearing fruit.

The varieties are: 100 Buffum, 100 Seckel, 200 Sheldon, 100 Beurre d'Anjou, 200 Bartlett, 200 Flemish Beauty, with a few trees of each of twenty or more other varieties. The result thus

far is, in the main, highly satisfactory, but in a recent letter to me on the subject of varieties and other matters pertaining to his pear orchard, he writes:

"Were I to plant another pear orchard, I would discard the Buffum entirely.

"A large portion of my trees are perfect beauties in form, as well as in health and vigor. They are branched from within two feet of the ground, and are ten to twelve feet in width at the base, regular cones or pyramids in shape, from eighteen to twenty feet high. Of course the trunks are well shaded from the rays of the sun."

GRAPES IN OHIO.—Mr. F. R. Elliott says there are 2,000,000 acres of grapes in Ohio.

GARDEN OF W. PENFIELD, Esq. near Cleveland, Ohio. These are situated at Lake View, and contain 15 acres, in which are 1,600 peach trees, of which 1,000 are in bearing, 70 large cherry trees, 800 pear trees, standard and dwarfs, 10 bearing apple trees, 2,500 grape vines, 1½ acres of Wilson, Kittatinny and Lawton blackberries, and one acre of Wilson strawberries. On this place, and on that of Mr. Whittlesey Collins, and also that of M. W. Manning, orchard cultivation is almost absolutely perfect. The ground is smooth and free from every weed, the trunks and limbs of trees are most beautiful, betokening incessant care, for which the reward, vigorous growth, is rich and ample.

EUMELAN GRAPE.—F. R. Elliott, in a recent letter to an agricultural paper says of the Eumelan Grape: "Perhaps no grape of very recent introduction better merits approval. Like the Delaware, it is a sort with which in quality of fruit we may hope to tone up and improve public taste, while realizing a profit in its sale. I have watched the growth of the vines for two years, and they compare favorably in all respects with any and all other varieties. The question comes to me almost daily, 'What grape do you advise to plant?' and I reply, plant mainly of those you have heretofore known to prove profitable in your sections and light soils; but of the new black grapes don't fail to plant some of Eumelan as a grape of promise. I have known several acres of it planted the past year resulting in uniform and satisfactory growth, giving good cheer to the enterprising planters, who doubtless congratulate themselves on their foresight."

PEACHES IN FLORIDA.—Peaches ripen in Florida as follows: Hale's Early, June 10 to 15; Early Tillotston and Yellow St. John, June 15 to 20; Canary, June 30, American, July 1 to 10; Bergen Yellow, July 10; Grosse Mignonne, July 15; Late Admirable, July 20; Oldmixon Free, July 15 to 30; Great Eastern, July 20; Pucelles de Malines, July 10; Late Rareripe, Aug. 1; Lagrange, Aug. 15 to 30; Gaylord, Aug. 15; Owen's Seedling, August 1 to 15; Osceola, September 1; Piquet's Late, September 1 to 15; Fruitland's Seedling, September 5 to 20; President Church, September 15; Lady Parham, October 1; Baldwin's Late, October 10; Julia, October 30.

PEARS FOR MISSISSIPPI.—A correspondent of the *South Land* furnishes the following list, which has done well with him:

Madeleine, Doyenne d'Ete, Beurre Giffard, Skinless, Bloodgood, Dearborn's Seedling, Julienne, Bergamot, Howell, Bartlett, St Andre, Henry 4th, Duchesse d'Angouleme, Heathcot, St. Nicholas, Beurre Diel, Belle Lucrative, Buftm, Triomphe de Jodoigne, Jalouise de Fontenay, Vendee, Winter Nelis, Doyenne de Alençon.

ORCHARDING IN NEW YORK.—Mr. Wm. W. Houseman of Batavia, presented the New York Institute Farmer's Club with the following suggestions concerning the managements of old orchards: "Old orchards should be highly manured, unless the soil is naturally very rich, and cultivated every third year at least, the plowing being rather shallow. Mulch the trees in the Fall with a load of barn-yard manure to every four trees, summer fallow the next year, spread the manure from the trees, and you can grub around the trees very easily, as the turf will be rotten. Throw some ashes and a little salt around each tree, wash the bark with lye, and your orchard will bear fruit unless something serious is the matter."

GREENHOUSES AT ST. JOE, MICH.—Among other indications of progress which are multiplying so rapidly, we take great pleasure in calling public attention to the Greenhouse and Nursery of Thos. Archer & Co. They are located up the Lake Shore, south of St. Joseph ½ of a mile, and contain pears of all kinds, 50,000 young trees of different varieties of peaches, 15,000 of plums and cherries, any quantity of every desired variety of small fruit, and also a large

number of quince stocks. But not to the nursery proper is attention now directed. During the winter Mr. Archer, anticipating a demand for those out-door plants which adorn a dwelling and make a garden look cheerful in spring, has slipped many thousand Verbenas, Geraniums, Petunias, Heliotropes, Fuchsias and foliage plants; every desired variety has been most carefully propagated, and will be for sale in the spring. Will he be sustained? We hope so. Not only that, we believe a demand will be created which will enable Mr. Archer profitably to extend his business. He has now on hand twelve different varieties of Bourbon, Tea and Noisette Roses, and all the more hardy varieties, together with dahlias, pinks, dielytra, salvia and pansies, too numerous to mention.

APPLES FOR MISSISSIPPI.—A correspondent of the *South Land* gives the following as the best in his experience:

Yellow May, Yellow Harvest, Red June, Royal June, Red Margaret, Red Astrachan, Summer Pearmain, Green Horse Apple, Carter's Winter, Tewksbury Blush.

This list, though short, would give a long succession of fine fruit.

A LARGE GRAPE VINE. A correspondent of the *New England Homestead*, writing from Fayetville, Vermont, gives the following about a grape vine on his farm:

Circumference three feet above the ground, 41 inches; circumference of one of the branch vines three feet from its intersection of the trunk or main vine, 30 inches. Another branch measured 28 inches in circumference at about the same distance from the trunk. Each of the branches is nearly uniform in size for several feet beyond its junction with the main vine.

Wild grapes are abundant in this vicinity, and I think other vines might be found here not much smaller than the one described.

WISCONSIN FRUITS.—Col. David A. See, of the town of Marquette, Green Lake Co., Wis., having raised 5,000 bushels of apples the last year, has now (March 1) 100 bushels of the Gilpin apple buried, the apples being covered with about one foot of straw, and over four or five inches of earth, in the manner commonly adopted in burying potatoes. He confidently expects these apples will come out in good condition

June 1. Last year he sold apples, of this variety buried in this way, at \$1 75 per bushel.—*Western Farmer*.

A NEW VIEW OF SEXUAL LAW.—A paper which was recently published in the *Press* is arousing quite an animated discussion in England, viz: The essay read by Mr. Thomas Meehan before the American Association for the Advancement of Science, on the laws regulating the production of sexes in plants. Mr. Meehan, it will be remembered, advanced the bold and somewhat startling proposition that "it is only the best condition of vegetative vigor that female flowers are produced, while male flowers come from a weakened vitality," or in other words, that it is only the highest types of vitality which take on the female form.

The *Gardener's Chronicle and Agricultural Gazette* of London, in a late issue devotes an editorial article to the discussion of this theory, evidently leaning to Mr. Meehan's proposition, to which it contributes the evidence of general additional facts—the case of palm trees being one which the editor alleges bear female flowers one year and rest the next year, bearing male flowers, whose production does not so severely try the energies and vital force.

Mr. Meehan so far has confined his theory to the vegetable world, his especial field, but there would seem to be no reason why, analogously, the same law, if demonstrated to be a law, should not hold good in the high orders of creation. If this be so, here is a phase in the woman question which the woman's right sisterhood have never thought of, and possibly do not understand. We invite their close attention to Mr. Meehan's proposition and argument, and caution them not to speak too soon. It takes some time, study and brains to master it.—*Daily Press*.

THE PEACH ORCHARDS OF CALIFORNIA.—The State of California has 800,000 peach trees, or about five to every voter—enough to produce more than 100 pounds annually for every person. The figures are large, but they are official, and are supposed to be correct. Santa Clara county is down for 70,000 trees, Sacramento for 74,000, El Dorado 56,000, Sonoma for 52,000, San Joaquin for 45,000, Butte for 40,000, and Napa, Placer, Tuolumne, Colusa, Amador, Yolo and Yuba range between 20,000 and 30,000 each.

Our climate and soil are well adapted to the peach, and the fruit will in time probably be cultivated on a large scale in this State for drying and curing.—*San Francisco Alta Californian*.

CERCIS CANADENSIS OR AMERICAN JUDAS TREE.—Can you or some of your readers say whether or not the blossoms of the above tree are detrimental to bees? A friend of mine, who has a good lawn, but also has a fair stock of bees, was upon the recommendation of a correspondent in the May number of the *Gardener's Monthly*, about ordering several of them to add to the ornamentation of his place but on the strength of old memories, I advised him not to do it, as I remember that when I was a boy on a Pennsylvania farm, the ground under the Red-bud or Judas trees was always thickly covered with dead humble bees, wasps, hornets and yellow-jackets, when those trees were in bloom. Neither we nor any of our neighbors kept honey bees.—*Colman's Rural World*.

THE FLOWER TRADE OF ST. LOUIS.—It is but a few years since the entire flower trade of the city was in the hands of a few old women, and the list of flowers on sale was of the most limited character. St. Louis was held up in contrast with Chicago and other cities, and denounced by interested strangers as displaying an utter want of enterprise. We have watched the indications of progress in this direction, especially during the last ten years, and find an amazing expansion and development. We have now Commercial Floral Establishments, Greenhouses, Gardens, &c., that are a credit to the community and an illustration of progress in the love of the beautiful, that cannot fail to work a marked effect on the health and moral character of the community.

The total sales for a single week this spring, foot up the very neat amount of \$3,550. The annual sales of a single firm for several years, footed up \$12,000.

In regard to the character of the stock for sale, it embraces every article in the greenhouse, conservatory and open garden; the usual stocks of evergreens and shrubbery, with all the equipments for parlor, window and table floral ornamentation. It would be a treat to many of our distant readers to visit those establishments and take notes of their collections and prices; after such a visit there would be less thought of Bos-

ton, New York and Philadelphia, in ordering flowers, seeds and ornamentals.

In the department of bouquets and cut flowers what amazing progress has been made. The finest flowers of the garden and conservatory, arranged in the most artistic styles, with all the most recent accompaniments, as rich and costly holders, vases, baskets, &c.

The houses and grounds are generally in excellent order, and the collections embrace everything new as it comes out in every department of floriculture, whether in Europe or the United States. The displays made at some of our fairs and horticultural exhibitions, fail to furnish an adequate idea of the variety or extent of the floral trade of our city, and this is yet in its infancy.—*Rural World*.

GRAPES IN MINNESOTA.—The agricultural editor of the *St. Paul Press* says the Concord is the general favorite in Minnesota, on account of its capacity to adapt itself to almost any soil or situation. Trouble is found in getting the Delaware up to bearing size, on account of its tenderness when young. The Iona has done well in some cases, but failed in others.

LARGE YIELD OF GRAPES.—A few years ago Mr. Carver Maltby sold to Mr. T. M. Smith, over eighty (80) bushels of Scuppernong grapes the production of one old vine. By some oversight this is said to have occurred in Louisiana. You are probably acquainted with both of the gentlemen as citizens of this (Columbus) County, and can locate the fact more correctly than the Louisiana paper. Mr. Maltby, having a large family and numerous visitors (all of whom had free access to his arbor,) thinks the yield that year over one hundred bushels.—C. G. WYCHE, in *Carolina Farmer*.

USES OF FUNGUS.—In addition to the many nutritious esculent species which are valued as articles of food, Fungi have another office to perform, and may be classed among the most beneficial scavengers of decomposing bodies. The moment vitality ceases in any organized matter, whether animal or vegetable, millions of spores floating in the air, are ready to alight upon it and assist in its dissolution. Whether fungi are the cause of disease, or merely a natural consequence of some disarrangement of the organs of a tree or plant, has long been a disputed point, many scientific gentlemen being arrayed on either side. Of late years, however, the question appears to have been pretty generally settled in favor of the advocates of the former belief. It is an undisputed fact that these pests will attack a feeble tree or plant in preference to one in a perfectly healthy condition, after the manner of all parasites, whether animal or vegetable.—*HOOPES' Address*.

THE MORELLA CHERRY CROP.—We have reports from most of the large cherry orchards in the northern portion of this state. The crop is not a large one. The older trees are pretty well filled, but those four or five years old have but little fruit. Mr. Dunning, at Jefferson, has marketed about 120 bushels, and expects to gather some 300 more. His first loads brought \$6 per bushel; the later shipments have sold for \$4 50 per bushel.—*Prairie Farmer*.

APPLES NEAR MINNEAPOLIS, MINN.—The *Farmer's Union* says the apples in the vicinity of Minneapolis have done very well during the past winter. Duchess of Oldenburg, Tetofsky, Red Astrachan, Belleflower, Fameuse and Wag-ner are named as having stood the winter very well—none of the buds being killed.

FOREIGN INTELLIGENCE.

KING LOUIS of Bavaria, is building hanging gardens on the roof of his palace, in the shape of an immense arched building of glass, extending over the greater part of the palace and courtyard, and filled with the rarest exotics.

EUPATORIUM GRACILE ODORATUM is in flower here now, and I am much pleased with it, as it does well in a warm greenhouse. Before the first lot of flowers is open there is a second lot

showing on the same plant. It will be very useful for bouquets, cut flowers and general decoration. Strike in February and March; pot in any ordinary good soil, and plant out of doors in June. Take up early in September, and with the ordinary care of a Verbena it may be had in flower all the year round. I should think, from what I have seen it, it will be everybody's plant when better known.—W. HOWARD, Balham, S. W., in *Gardener's Chronicle*.

BEDDING PLANTS IN ENGLAND.—The following extract from a correspondent of the *London Gardener's Chronicle*, showing the kinds of plants used for bedding purposes near Southampton, will have an interest for some of our readers:

"There is no mistake about one thing, this is the place to see the flower garden. One might imagine that the whole had been laid out from here, so admirably does it all fit to each other. Right in under us runs a very broad terrace walk the whole length of the mansion, and beyond this is margined with vases filled with flowering plants, and at its extremity is a small enclosed parterre garden called the Temple Garden, after a building of that character situated within it. This is filled with a variety of plants producing flowers convenient for cutting from; then, coming more to the front, are in close conjunction two large beds resembling Prince's Feathers, one being made up with a base of *Viola cornuta*, flowering freely, with lines of *Cerastium*, yellow *Calceolaria*, Tom Thumb *Pelargonium*, Purple King *Verbena*, and Bijou *Pelargonium* to form the feathers. The other had a base of Golden Feather, and in addition to some of the above were also lines of *Iresine Herbstii*, Christine *Pelargonium* and blue *Lobelia*. A small oval bed looked very pretty with a centre of scarlet, and alternating triangles of blue *Lobelias* and *Cerastiums*. Some serpentine beds were filled with centres of *Iresine Herbstii*, bordered with Christine *Pelargonium* and edged with *Gnaphalium*, whilst others had centres of *Ageratum* and margins of *Rubens Pelargonium*, a bright rosy scarlet kind, that is most effective for beds. Just off the right hand corner of the mansion was a large bed resembling a St. Catharine Wheel, having a centre of Den's *Heliotrope*, margined with Mons. Martin *Pelargonium*, two wings being filled with Christine, and the others with Stella and Cerise Unique, the whole edged alternately with *Viola cornuta* and *Lobelia*. A perfect gem was a round bed, having in the centre a star of *Centaurea ragusina*, the angles being filled with *Coleus*, and edged with blue *Lobelia* and *Cerastium*, whilst in another bed a very pleasing effect was produced was a centre of *Coleus* from which radiated narrow, sweeping scrolls of *Cerastium*, blue *Lobelia* and Yellow Pansy. At Cadland the Pansy always does well and is wonderfully effective; it should be struck from cuttings in the autumn, to make strong plants for the spring, and it will flower profusely all the summer. The

descriptions of the beds noticed here are given because they appeared the most striking; but they form but a small part of the whole."

CYCLAMEN PERSICUM.—I think of all winter and spring blooming plants this is the most pleasing, and yet how seldom we see it grown to any extent. This may be attributed not altogether to want of space or convenience for growing it, but rather to the plant not being known and valued as it should be. As a dwarf decorative plant for the greenhouse or conservatory it stands unrivalled; when interspersed with *Primulas* on the front row of a stage or platform the effect is most pleasing. Equally useful is it to those who have a demand for cut flowers during the dreary winter and early spring months. The sweet scented kinds are, I think, indispensable for bouquet making, imparting as they do the most delicious odor, little inferior to that of the Violet; and after yielding such a succession of flowers as few plants will do, depriving them of their blooms as fast as they open, there is then enough in it as a fine foliage plant to please the most fastidious. Any amateur with only the means at hand of an ordinary frame and greenhouse, may grow it to perfection.—*Gardener's Chronicle*.

CRASSULA LACTEA.—This plant, which was introduced into England nearly a 100 years ago, is now rarely seen except in collections of succulents. Surely the purity and abundance of its tiny white star-shaped blossoms ought to make it a general favorite, coming into bloom as it does in this dreary month of January, when so few delicate flowers are to be had. There is a figure of it in *Loudon's Encyclopedia*; but all the dictionaries make its flowering month to be September. Like most of its order, its blooms last a long time out of water, and it should therefore be a valuable plant for bouquets and button-holes. I fell in with some plants of it lately at Mr. Haynes' nursery at Penge, where I was pleased to find that the propagator had had instructions to make as many flowering plants as possible for next year.—W. T., in *Gardener's Chronicle*.

[We noticed in our last year's volume the great value of this plant,—so easily grown, and so productive of pure white flowers. With us it is a late winter or early spring blooming plant.—Ed. G. M.]

"HONESTY."—This is certainly one of our most useful spring blooming decorative plants, and is so well known that I should not have referred to it, but for the wish I have to correct a statement made by a writer on spring flowers, not long since, as to the proper time of sowing it. He intimated that August was the best time for this purpose, but experience has proved to me that to secure strong bushy plants in April, 2 feet in height and 15 inches through, and a mass of bloom, the sowing should take place in the month of May previously. They should be treated entirely as other hardy annuals, and pricked out 6 inches apart when large enough to conveniently handle, this will allow the plants to grow dwarf and robust. For the back rows of ribbon borders, or the centres of large beds, the "Honesty" is invaluable; it is also eminently useful when planted either singly or in clusters about the shrubbery borders. Whilst for those who require large quantities of early cut flowers, a stock of it must prove of great assistance. I have grown three distinct colors of it—purple, lilac and white; the latter is the showiest of them, but at the same time I believe the most scarce. The flowers of the dark kind will also often assume a flaked or variegated form, but this characteristic is simply a sport. I think there is no garden, however grand, that will not be improved by the cultivation growth of a little "Honesty."—A. D.

[The above from the *Gardener's Chronicle*, refers to a plant very often met with in old American gardens, where it has mostly been valued for its curious flat seed vessels.—Ed. G. M.]

BERBERIS NEPALENSIS.—I do not think that this plant is nearly so well known as it deserves to be. In autumn and winter it is one of the prettiest of berry bearing shrubs. It is well adapted for ornamental purposes, and few possess a more pleasing harmony of color in the combination of their leaves and fruit. The latter, though not so numerous as they usually are on the common *B. microphylla*, are of a much brighter red, slightly drooping, and the eye quickly rests on them owing to their clear shining appearance. The plant, in style of growth, is not unlike our native *Berberis*, and its leaves are larger than those of the other species referred to, being of an ovate shape and a glossy dark green color. It is an ornamental shrub, quite worthy of general adoption; and

those of your readers who wish to procure a choice selection of hardy plants to embellish villa gardens with, or for the purpose of adorning slopes or other raised banks, would find in it a very valuable addition to kinds that are better known.—*Gardener's Chronicle*.

GIGANTIC AMERICAN FLOWERS.—Tropical America enjoys the pre-eminence of producing the largest floral development in a good many natural orders, there being the *Victoria regia* amongst *Nymphaeaceae*, the *Brugmansia candida* amongst *Solanaceae*, the *Lasiandra macrantha* amongst *Melastomaceae*, the *Sapranthus nicaraguensis* amongst *Anonaceae*, the *Godwinia gigas* amongst *Aroideae*, &c. Until I discovered *Sapranthus nicaraguensis* (*Gardener's Chronicle*, 1869, p. 1334,) tropical Africa was supposed to possess the largest *Anonaceous* flowers (*Monodora*,) and now I learn from your columns (*l. c.* p. 1330) that Dr. Welwitsch has found in Africa an Aroid even larger than my *Godwinia gigas*. As I "out-monodored" him in the *Anonaceae*, of course I must not grumble if he "out-godwinias" me in *Aroideae*; but I still trust that when actual measurements are produced, America may yet come off victorious in the question. There is no reason to assume that the few specimens of *Godwinia* measured in Nicaragua were the largest ever produced in the country, and there is every reason to assume that if my specimens, after suffering somewhat in their passage to England, attained the past season dimensions equalling within a few inches those of the plants in Nicaragua, they may exceed them even if Mr. Bull really does begin to cultivate them. BERTHOLD SEEMANN.

[Dr. Seeman refers in the above paragraph to the *Godwinia* which he discovered in Nicaragua with flowers as large "as a man." This plant belongs to the *Arum* family, to which our "Calla lily," or "Preacher in the pulpit" of the children, belong, and these plants may give some idea of what this "monster aroid" is like.—Ed. G. M.]

BOUVARDIA JASMINIFLORA AND LONGIFLORA Are very useful, sweet-scented, winter-flowering plants, much neglected by gardeners in general, in consequence of their not having a proper place for them. They require a warm, light, airy house, close to the glass during the

autumn, winter, and spring months, and during the summer to be planted out in the open garden, in good soil, repotting again in September. They may be increased by cuttings or seedlings, as they seed very freely. Place the plants in a warm moist house six weeks before you take the cuttings, then they strike very freely in the spring; pot in good rich fibry peat and loam, adding coarse sand; syringe the plants daily. In case red spider appears, syringe with clear soot or sulphur water, and if green-fly shows itself, smoke with tobacco paper. *B. jasminiflora* is the freest of the two, but *longiflora* has the largest flowers, and is the sweetest scented. When the pots are full of roots, water with liquid manure frequently. All kinds of *Bouvardias* like the same treatment, with the exception of the rough-leaved one, which will not stand the syringe so much.—*Gardener's Chronicle*.

PRODUCTION OF INDIA RUBBER.—The *North American Review* states that there are now in America and Europe more than 150 manufacturing of India rubber articles, employing from 400 to 500 operatives each, and consuming more than 10,000,000 lbs. of gum per annum. The business, too, is still considered to be in its infancy. Certainly it is increasing. Nevertheless there is no possibility of the demand exceeding the supply. The belt of land around the globe, 500 miles north and 500 miles south of the equator, abounds in trees producing the gum; and they can be tapped it is said for 20 successive seasons. Forty-three thousand of these trees have been counted in a tract of country 30 miles long, and eight wide. Each tree yields an average of three tablespoonfuls of sap daily, but the trees are so close together that one man can gather the sap of 80 in a day.

POMOLOGY IN WURTEMBERG.—C. Shickler, president of the Horticultural Society "Flora," sends to the department of Agriculture at Washington, the following statement relative to Pomology in Wurtemberg:

"Wurtemberg may be called one of the largest fruit growing countries in Europe. In very good and prosperous fruit years, as will happen once or oftener in every decennium, (1860, 1864, 1869,) the crop amounts to from three to four hundred weight of fruit for every head of our population. The very perceptible saving in cereals and other provisions during such years reduces their prices

increases the export, and has caused our farmer's adage: "*Cheap times come out of the wood.*"

Our fruit cultivation pervades every district. The orchards increase in number and size every year, not only in the river valleys, but on the hill slopes and mountains, so that you may now see fine and remunerative orchards two thousand and two thousand four hundred feet above tide-water, where it was formerly thought that no fruit could prosper.

The most fruitful sections are found along the shores of the Neckar, north of the Alb, and generally on the northern and northeastern slopes of the hills which prove, most propitious for fruit.

According to official statistics, as far as obtainable, there were in Wurtemberg during the year 1852, of seed fruit, 5,000,000 trees, with a yearly crop of 8,000,000 hundred weight of fruit; and of stone fruit, 3,500,000 trees, with 2,000,000 hundred weight of fruit. Since then the number of trees has increased very much. In some districts there are from eighty thousand to one hundred thousand fruit trees upon a square mile. The city of Stuttgart counts upon a horticultural area of five thousand four hundred and forty-five acres, about one hundred and ten thousand fruit trees. The crops in different years vary from 590,000 to 19,400,000 sei, (three sei per hundred weight,) and as the price per hundred weight varies between one and three thalers, gold, (about one dollar to three dollars of our currency,) the average crop of fruit represents a value of six to seven millions of thalers.

The greatest danger to fruit crops lies in the spring frosts during the blooming season; yet as this season varies nearly four weeks in the different sections, it is easily understood that frequently one county has plentiful crops, whilst another has a failure, but general failures are rare. For the same reason it is evident that the warmest districts are not the most favorable for fruit cultivation, as the earlier the time for blooming the greater is the danger of frosts; and for the same reason it is exceptional when good fruit and wine crops are produced the same season, as the former prospers best under late vegetation and a wet summer, while wine requires early vegetation and a dry and warm season.

The yield of cider and dried fruits is considered with us as of great importance, but table fruit is also extensively cultivated in some sections, *i. e.*, "Rems hal," "Neckar shal." The apple crop is the most useful of all. There is also

some export of this crop, as well as of fresh cherries into Bavaria.

The cherry tree is among the stone fruit most cultivated in the valleys of the Alb and Rems. The prune tree (*Zwetschenbaum*) is very common all over the country, and yields the most valuable fruit for drying. The year 1868 abounded in all kinds of stone fruit, especially prunes. The walnut tree (*English walnut*) prospers most on the slopes of the Alb, and yields good crops and fine cabinet wood. Peaches and apricots are raised in vineyards and gardens, in the former as standards, in the latter as wall fruit.

A great advantage and ornament is derived from the planting of fruit trees all along the roads of the country, the trees being mostly owned by neighboring farmers.

To promote pomology there are several nurseries, and in the vineyards there are raised a great many young fruit trees, yet the demand is greater than the supply, and there are every year great quantities imported from Bavaria, Baden and France.

The tree fairs every Spring in Esslingen, Rottlingen, Goeppingen and Stuttgart are interesting and peculiar features of Wurtemberg. The prices of young trees vary considerably. Trees which, from 1848 to 1852, sold at six to ten kreutzer (three to

five cents) each, now sell at one to one and a half gulden, (thirty to forty-five cents.) The average price of young apple trees is forty-two kreutzer (twenty-five cents) each; pear trees forty-eight kreutzer, (twenty-eight cents;) cherry or prune trees eighteen kreutzer, (ten cents,) varying with the quality of the tree.

Some years ago a school for pomology was established, which proves of great value.

The greatest portion of the fruit crop is used for cider, the favorite beverage of the farmer. This cider keeps very long if made of certain species, as for instance, the orange pear, wax pear, roast pear, sugar apple, Borsdorfer apple, Reine-Hen apple, &c.

In unfavorable years, and even in average years, during the last decennium, large quantities of fruit have been imported from Switzerland, Baden and Hessen, to answer the steadily increasing demand for cider. Esslingen alone produces in good years 10,000 eimer, (800,000 gallons,) mostly of sugarapple. A sugarapple tree is known to have yielded from eighty to one hundred sei (twenty-six to thirty-three hundred weight of apples, at a value of 600 to 1,000 gulden, (\$300 to \$500).)

The industry of distilling liquor from cherries and prunes (*kirshengerst* and *zwetschengeist*) is also lucrative and important.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The Fruit Committee of the Pennsylvania Horticultural Society having decided to pay a visit to the grounds of D. W. Herstine near Germantown, to see his seedling raspberries growing on the spot, Wednesday, July 6th was selected for the purpose. An invitation had been extended to leading Pomologists and Editors to meet the Committee there. We found present, Thurber of the *Agriculturist*, Quinn of the *Tribune*, Fuller of the *Sun*, Freas of the *German-town Telegraph*, and some fifty others well known to fruit growers.

After an inspection of the plants, the Committee selected four as worthy of dissemination, and named them as follows:

No. 1 Herstine,
9 Elizabeth,
10 Ruby,
16 Saunders.

After the Special Committee had performed their duty, and the Committee of the whole theirs in connection with the handsome entertainment prepared by Mrs. Herstine, speech-making was in order.

Mr. W. Saunders of the Department of Agriculture, Washington, was the first speaker called. He said he remembered well when the Franconia was considered all that was to be desired in a good raspberry, but in time it almost disappeared. In fact none which were foreign to the climate had proved any great success. A species of mildew affected the foliage, then the leaves did not ripen, and the foreign varieties gave but poor crops compared with the native Philadelphia, which was up to the present time

the only one we could find generally grown. He did think that we had got what was long looked for, a seedling of value from hardy parents. This was a seedling of the Allen. The Allen was well known for its hardiness, but it would not fruit. He had known one plant at Rahway, N. J., to make plants enough to fill an acre, but never fruited. Now he believed we had the hardiness of the Allen with the productiveness so much desired.

He thanked the Horticultural Society for the honor of his name to the new fruit.

Mr. Wm. Parry was next called: He had grown raspberries for thirty years, and had lost much time and money in planting and trying to make profitable seedlings of the foreign race. They all seemed to do well for a little while, but soon ran out. He remembered when in the city yard of Dr. Brinckle the Orange first fruited, he saw himself two quarts gathered from a single plant of one or two stems; but where was the Brinckle's Orange now? It was true, that none of these had a constitution that would allow them to battle long with the climate. The Allen was well known as hardy and of fine quality, but by itself bore little fruit.

We wanted something which was hardy and productive, and here he thought we had it. These seedlings were no doubt the product of the Allen, which had been fertilized with the pollen of the Philadelphia which had been growing near them; and the result was what he believed would prove the Pomological wonder of the age, combining more good qualities than any other we had seen—large as Hornet—color scarlet—rich in flavor—productive as Philadelphia. Nothing more is wanted.

Calls were next for Mr. A. S. Fuller:

He said he was highly pleased with what he had seen, but was not so sanguine as some of his friends. We all knew how many new fruits had been introduced, which really were at the time, the finest ever seen. The best he could feel about these was that they promised very well. He would like to see our native wild raspberries get more attention, though it was scarcely possible we should ever get the fine quality of the foreign kinds in them.

Prof. Thurber was next called on, who in a few brief remarks expressed pleasure at what he had seen, and felt he could "record progress."

Mr. P. Quinn came next, who in a humorous speech, recorded his experience of 16 years with the Antwerps. He could never tell whether

they were living or dying, until they were dead. These seedlings of Mr. Herstine's had pleased him very much; yet he should like to hear of them after they had been tried elsewhere. They were sheltered here. They might not do so well in exposed places. But it was not for him to forebode evil. He saw the good things here; here were the facts, and he could only hope they would turn up alike elsewhere.

Mr. T. Meehan was then called:

He hoped they would have passed him by. His tongue was not in good speaking order, though no doubt most present might think the beautiful sight they had seen on Mr. Herstine's grounds was enough to make the dumb to speak if not the blind to see. Some had suggested that possibly these fruits might not hold out in their good promises. He could only say that he had seen them last year, and they were now as good as they were then, and there were no signs of falling off visible. He agreed with others, that caution was necessary in view of the past. The Allen he regarded as a foreign variety, but its hardy, vigorous constitution was every thing that was needed in a raspberry, so far as that went; and he regarded it as one of the very best parents to start an improved breed from.

Resolutions of satisfaction at the enterprise of Mr. Herstine were then passed, and the meeting adjourned.

The MONTHLY EXHIBITION was held on the 12th.

The Premiums for Hollyhocks, Lilies and Gladiolus were all awarded to Mr. G. W. Earle. The Lilies were from Auratum, Superbum and Philadelphicum. There were 18 Gladiolus in the collection, and we marked as among the best Bernard de Jussieu, Shakespeare, Horace, Thos. Moore, Apollon, Milton, James Veitch, La Candeur.

In the fruit line, there was a great struggle for the best new Raspberry. The Herstine having been exhibited before, could not compete in this class. The trial lay between the *Northern Wonder* of Mr. Anthony Felten, and Mr. Herstine's *Saunders*. The latter was awarded the premium, though there was but little difference against the *Northern Wonder*, which is evidently a very good variety, and will be perhaps as popular in the field as any of its contemporaries. It seems by the specimens exhibited, to be a compact stiff grower; and its raiser says will stand erect without any stakes or support.

The Gardener's Monthly.

DEVOTED TO

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EDITED BY THOMAS MEEHAN.

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HINTS FOR SEPTEMBER.

FLOWER GARDEN AND PLEASURE GROUND

So soon as the leaves begin to fall, and the hot dry summer weather passes away, people begin to think of planting dutch bulbous roots.

Of all fertilizers, well rotted cow manure has been found best for them, and especially if mixed with a portion of fine sand. They should be set about four inches beneath the surface of the ground, and a little sand put about the roots when being planted. A very wet soil usually rots the roots, and a dry one detracts from the size of the blooms. A soil in which garden vegetables do well, is one of the best for these plants.

In selecting kinds to plant, the Hyacinth has of course the first place. They are usually set in beds where the summer flowers have bloomed; and are best set wide enough to allow of the summer bedding plants being put between them. They die soon after the spring flowers are set out, and can easily be taken out before the summer flowers grow strong enough to crowd them. In selecting, a very good show of bloom can be had from the moderate priced mixed kinds. These, where one has not much acquaintance with them, will look nearly as well as the choice named kinds. The last, however, are indispensable to those whose taste has been somewhat cultivated by years of Hyacinth growing. For window blooming, the bulbs are usually set in four inch pots, about level with the surface of the soil, and the pots buried under ashes or sand until they begin to push. It is also as well before hard frost sets in, to cover the bulbs in the open ground with a little light litter. They are hardy enough; but the litter keeps the ground from

thawing, which, oft repeated, draws the bulbs out of the ground. When the bulbs are to be grown in glasses of water, it is best to set the whole concern in dark places for some weeks; as darkness always favors the production of roots. When the tops are to grow, then all the light possible is necessary. But we want roots before we can have tops. Besides Hyacinths, other bulbs which are hardy, and can be set out in the fall, are Tulips, Narcissus, Squills, Jonquills. Crown Imperials, Crocus, Snowdrops and Japan Lilies. The Gladiolus is sometimes seen in these Catalogues, but these summer flowering things are all planted in Spring.

In many parts of the Northern States the leaves will have changed color previous to the incoming of winter, and the planting of trees and shrubs will commence as soon as the first fall showers shall have cooled the atmosphere and moistened the soil. Further south, where the season will still remain 'summer' awhile longer, the soil may at any rate be prepared, that all may be in readiness when the right season does come. When there is likely to be a great deal of planting done, and only a limited number of hands employed, planting may commence early in the month. What leaves remain on should be stripped off, and the main shoots shortened. They will then do better than if planted very late. In fact, if planting cannot be finished before the middle of November in the Northern and Middle States, it is better as a rule, deferred till spring. In those States where little frost occurs, this rule will not apply. The roots of plants grow all winter, and a plant set out in the fall has this advantage over spring set trees, that its roots in spring are in a posi-

tion to supply the tree at once with food. This is, indeed the theory fall planters rely on; but in practice it is found that severe cold dries up the wood, and the frosts draw out the roots, and thus more than counterbalance any advantage from the pushing of new roots. Very small plants are, therefore, best left till spring for their final planting. The larger things, and which we recommend planting in the fall, should be pruned in somewhat at planting. The larger the tree, the greater in proportion should it be cut away.

Before the summer flowers are gone make notes of the best things to be had for next year, and arrange now what are to go in the beds then. There will then be time to get all together. A friend has a bed of the early flowering Cannas which have made a pretty show on his grounds; but last year he thought there was hardly gaiety enough with the curious leaves. He planted a few scarlet Gladiolus amongst them, and found they grew very well together. The leaves of Gladiolus hardly showed amongst the Cannas, so there was no incongruity. The effect was as if the Canna's bore the scarlet flowers. It is such ideas as these which give interest to a flower garden. So with leaf plants. The Coleus, Achryanthus, Begonias, and such like, have much the best effect in partially shady places. There are other things which do best in the sun,—such as the Cannas, and Gladiolus aforesaid.

The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand cuttings of half ripened wood of the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating house. In making cuttings, it is best to cut the shoots just under a bud,—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong growing things, such as Geraniums, Fuchsias, &c.

Small growing things, of course, will take more buds to the one cutting. From one to three inches is, however, long enough for most cut-

tings. They should be inserted about one-third of their way under the sand, which latter should be pressed firmly against the row of cuttings with a flat piece of board,—not, however, hard enough to force the particles of sand into the young and tender bark, which is often the first step to decay. For a few cuttings, they may be inserted with a dibble; but where many are to be put in, it saves time to mark a line on the sand with rule or straight edge, and then cut down a face into the sand, say one or two inches deep, when the cuttings can be set against the face like box edging. All amateurs should practice the art of propagating plants. There is nothing connected with gardening more interesting.

FRUIT GARDEN.

Another year of bountiful crops has awarded the efforts of the fruit grower, and hundreds will plant who have never thought of it before. On the other hand many who have grown for market are discouraged by the very abundance. The enormous quantities produced have so cheapened them, that hundreds have been almost ruined.

The public was not prepared for such great abundance. Now just as people are getting to use fruit freely, and making it by habit a necessary article of food, growers will go out of the field, and in consequence, even with good crops another year, the demand will probably exceed the supply. Thus these little waves of success ebb and flow; all we can do is to go on with our hints for the success of fruit growing, knowing that these little incidentals will regulate themselves.

The planting of the Pear, Apple, Plum and Cherry will soon be in season; Peaches, Apricots and Grape Vines, except south of the Potomac being for the most part left till spring. Choose a dry piece of ground. If not naturally dry, it is best to throw the earth up into banks or ridges and plant on them. This is cheaper and better than underdraining. In planting, if the roots appear deep, cut away some of the deeper ones, and shorten some of the top of the tree at the same time. This is particularly true of dwarf Pears which are often grafted on rather long Quince stocks. Cut all away of the Quince root but about six inches, and if this should be found to leave few roots, cut away the top correspondingly. Most of the failures with dwarf Pears come from bad Quince roots, so deep

in the ground the lower parts decay, and this decay gradually communicates upwards until the whole system becomes diseased. The more tenacious the subsoil the more necessary is it to attend to this matter. We spoke of pruning in proportion to injury. It will be found that all trees are a little injured by removal, therefore all trees should be a little pruned at transplanting.

In preparing for planting trees, the soil should be stirred up at least two feet in depth. Of course, the trees should be planted in the holes only so deep as they stood in the ground before, rather higher, if anything, as the soil will settle. Good common soil may be filled in the holes if the natural soil is very bad; but anything applied as manure may be stirred in the surface-soil after the trees are planted.

Some talk, in preparing an orchard, about making "one large hole" for all the trees. This seems witty, but it is an expense which very few orchards will ever repay. Water is likely to stand in the deep holes we recommend; but in such cases we would, rather than go to the expense of subsoiling the whole orchard or underdraining, plant higher than they grew before—higher than the surrounding soil, mounding the earth, as it were, above the level. No water will ever stand here. And the money usually spent on making "one big hole" of the "whole" orchard, or in underdraining, we would spend in annually surface dressing the ground.

Trees that have long stems exposed to hot suns, or drying winds, become what gardeners call 'hidebound.' That is, the old bark becomes indurated,—cannot expand, and the tree suffers much in consequence. Such an evil is usually indicated by grey lichens which feed on the decaying bark. In these cases a washing of weak lye or of lime water is very useful; indeed, where the bark is healthy, it is beneficial thus to wash the trees, as many eggs of insects are thereby destroyed.

The old practice of slitting hidebound Cherry and other trees with a knife, had much more sense in it, than some of our leading minds are ready to admit.

VEGETABLE GARDEN.

The main crop of Spinage should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinage for fall use.

Turnips also may still be sown. In fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching described in former hints.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as, if it grow too vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, the other at the end. The rule is get them only just so strong that they may live over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, brick or wood, sunk five or six feet below the surface of the ground, into which leaves, manure, or any waste vegetable matter is filled. When quite full it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of 'Cauliflower.' Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

COMMUNICATIONS.

ANSWER ON NEW GRAPES—WHAT SHALL I DO WITH THEM?

To Mr. George Haskell, Ipswich, Mass.

BY DR. H. SCHRODER, BLOOMINGTON, ILLS.

After a thorough and extensive experience of over 15 years in Grape culture in Illinois, and observations over the West,* I came to the conclusion that Foreign Vines, or Vines with Foreign parentage or blood, will not be the Grape of the future, or the most profitable ones to grow. Still I wish them tried everywhere in small quantities and in collections. I believe in American Seedlings of our yet best approved varieties, as Concord, Norton, Taylor, Perkins, Delaware, Iona, Clinton, Catawba and a few others. Seedling from Seedling we may have to go for a century, before we will find the best.

In another thing I believe, and that is, after our wild lands are in cultivation, swamps and wet lands dried, our roads made dry and perfect; the miserable fence laws everywhere most abolished, the real nurseries for weeds and obnoxious plants; forests are cultivated; our soils will become more adapted to Grape culture.

But think on it, to day we have a wild piece of timber or prairie land with a growth of Stramonium (Gimpson Weeds), Dog Fennel, Wild Hemp, Hazelbrush, Elms, Cottonwoods, etc., etc., and to-morrow or so we plant the most goodly and refined plant, the Grape Vine, and now expect them a fine, a superior and healthy fruit.

The plant or the vine is the seed, or what the Father is in creation of man or a child, the land is the mother, to make it healthy give it development, beauty and growth. Now only see through how many generations you can trace and detect the sins, the rough materials, the imperfections of the mother and also the father. Raise your seedlings in your most cultivated lands, and as we have to go through the stadium of cultivation most everywhere, let time, good cultivation and observation bring Grapes to more perfection. Let us not stop for a moment with the cultivation of the Grape, the making of wine, as we have to fulfil our mission. The abolition of drunkenness and cruelty, we

*I sold since that time over 18,000,000 of Vines and cuttings to all parts of America, but $\frac{3}{4}$ went westward.

are determined to make, by wine using, our people happy.

We have already very good grapes for wine, and the process of gallizing will make our rough backwoodsmen. Wine palatable to our people, and my word for it, our Wines will be better and finer every year, and what is more, will be cheaper and in the reach of the laboring class. If a laboring man can drink a glass of Wine for five cents, he will use it in preference to whisky or bad beer. Wine will and must supersede the beer, as it is first used in smaller quantities.

Second, every farmer and poor man can make it without the expense of great apparatus.

Third, it can be stored away in smaller rooms.

Fourth, it can be transported easy, and most any time.

Fifth, by properly keeping it it will not sour.

Sixth, the common use of Wine will not make people sick, start diarrhoea, colic or cholera, like sour beer in summer.

Seventh, as it is stated that, soul, spirit or ghost in man consists of phosphoric fluid in the tubes of our nerves, it will make people wiser, happier, morally good, and lead to brotherly and neighborly love.

Not every farmer can have a brewery, but most can have a little vinyard. Mark my prophecy, America and particularly the Western States, will supply half of mankind and the happiest communities with Wine in 100 years, and we will have a happy and morally good people.

As to protecting new plants, or to patent the same, I am of a different opinion with you; just let the thing go as it is. If you have a good thing and can persuade buyers, make all you can out of it, if you have the plant for speculation; but if you are not a professional nurseryman, and you give the world a good new plant, you will be a benefactor, and your name will be recorded with golden letters in the history of Grape culture and of your country. We have yet many good Vines and Plants, and where the first introducers did not make a dollar out of them; and here it is the first time in my life, that I speak publicly of Dr. Grant and his Delaware, Iona, etc. This man is often and often attacked about his money making out of those new varie-

ties. I say hats off! Thanks to him, who by his enormous advertising, canvassing and most powerful efforts, persuaded people to plant grapes, and get the idea of new seedlings up in people. Without Dr. Grant there would not have been one-fiftieth of the Grape Vines planted. Dr. Grant has my sympathies, and when we are all ashes, the history will give him the first or second place, and will plant him a monument. I think here in the West, Illinois, Ohio, Missouri and Kansas are the best States to try your seedlings or Hybrids. Louis L. Koch in Golconda, Ills. is one of the most scientific and practical collection growers, also Hon. Fred. Meunich, in Dutzow, Mo., and Mr. Barnes, in Leavenworth, Kansas, Mr. S. Miller, in Bluffton, Mo. I have tried nearly 400 varieties myself.

I hope you will be pleased with my remarks, as they come from my old heart.

EARTH TEMPERATURE.

BY J. M. PHILA.

Your remarks in a late number of the *Monthly*, advising your readers to observe for themselves, led me to make some observations on the differences of temperature between grass sod and cultivated ground. The trial was made on the 25th of July. It had been hot for two weeks previous with little or no rain. My first trial was at 11½ A. M., I selected a piece of ground that had been hoed and thoroughly cleaned of weeds a week previous. Digging down a spit deep, I placed the thermometer in the hole and covered over with soil, after it had remained a few minutes I took it out and found it gave as the temperature 92°. About four feet from the above spot is a grass lawn, that had been twice mowed this season, the last time about a week ago. In this I dug a hole the same depth as before, and with the same process found the marking of the glass to be 86°, or 6° less than the other. The temperature of the atmosphere at the time was 92°. Being anxious to see what effect a hot day's sun would have on the heat of the ground; at 5 P. M. I went through with the same experiments, and found the cultivated ground to be 99°, and the grass sod 91°, or 8° less than the former. The atmosphere then being 90°. The moisture of the ground appeared much about the same in both places. The grass having been twice mowed, but little grass roots could be seen, these were very fine and did not extend but an inch or so down, and were hardly numerous enough to hold the sod together. There would seem to

be no question about the grass sod being much cooler than cultivated ground; and wherever the injury to a tree appears to be from excessive heat at the roots, it certainly would thrive better in sod with the grass close cut.

It will be seen by the above figures, that at 5 P. M. the heat of the ground 9 inches below the surface was actually 9° higher than the air above ground. Though prepared to find the clean ground the warmest, I was quite surprised at the results.

A FEW HINTS ON VIOLET CULTIVATION.

BY JAMES TAPLIN, MANAGER FOR WM. E. SUCH, SOUTH AMBOY, N. J.

To those about to commence growing Violets. The best time to obtain plants is April and May. We usually divide and plant out for flowering the succeeding autumn and winter, in spring, about the third week in April, preferring if possible, a dull damp day for doing it. Having previously prepared a moist and partially shaded piece of ground, by digging in a good coating of decayed manure, every little piece with a few roots will make a large plant by autumn. We plant in rows about 1 foot from plant to plant, and two feet from row to row, to give room for hoeing, which should be done frequently, both to keep down weeds and stir the ground.

Nothing more is necessary until the end of September, when we prepare frames by placing about two feet of partially decayed manure, which will give a moderate heat at the bottom, and then a mixture of half good loam and decayed manure a foot deep on the top; choose a day after a good shower or give the plants a soaking of water before lifting, they will then lift with a large ball of roots and soil, plant in frame from 15 to 18 inches apart, give a good soaking of water after making soil quite firm; keep the light on a few days, and off at night; shade for a week if necessary, and then leave light off entirely until frosty nights, when they are closed up, and as nights get colder covered with rough hay, as a moderate frost will take all the scent from flowers and a moderate frost will also check the flowering. Give a thorough watering when necessary, doing it in the morning of a mild day; give abundance of air, either by pulling light off or tilting them up according to the state of the weather.

We grow principally the Czar, a very sweet,

large flowering, single variety; a very strong grower; flower size of small pansies, on very long stalks, so that they may be used for bouquets without tying to stems; color a rich purple; nearly hardy. I need not state it is full flowering, having gathered 2000 flowers from a 6 light frame in one day. It commences to bloom in September and continues in succession until March, in cold frames.

The King is another excellent variety, very large, 1½ inches in diameter and very double and sweet. It is so free flowering that it makes a complete carpet of blossoms. A plant of this sent to Mr. Meehan this spring, was an average sample. It was about 18 inches in diameter, with perhaps over 200 flowers and above that number of buds; color deep purple; quite hardy and commences to flower in March. This variety I had planted in 2 inch pots in greenhouse, with 6 and more large flowers at once. We also grow a small white hardy variety, very sweet and pretty for planting on graves, banks, etc., for which the King is also well adapted, and it can be realized a bank of violets. We pot some and put some thick in boxes in a greenhouse, as it is very difficult to gather from frames sometimes in very severe weather. Those require keeping moist, or Red Spider may be troublesome.

Other varieties require the same treatment, except that the Neapolitan is not so hardy as these newer varieties I have named.

CROSS FERTILIZATION AND THE LAW OF SEX IN EUPHORBIA.

BY THOMAS MEEHAN, READ BEFORE PHILA. ACADEMY OF NATURAL SCIENCES.

Mr. Charles Darwin's interesting observations on cross fertilization open a new world for original discovery. The list of plants which seem to avoid self-fertilization is already very large. I think Euphorbia may be added to the number. Certainly this is the case with Euphorbia fulgens, Kaw. (*E. jacquiniæflora*, Hook.) which I have watched very closely in my greenhouse this winter. Several days before the stamens burst through the involucre which closely invests them, the pistil, with its ovary on the long pedicel, has protruded itself beyond, exposed its stigmatic surfaces, and received the pollen from the neighboring flowers. The way in which the pollen scatters itself is curious. In most flowers a slight jar or a breath of wind

will waft the pollen to the stigmas; but I have not been able to notice any to leave these flowers in this way; for as soon as the anther cells burst, the whole stamen falls from its filament-like pedicel, and either drops at once on the pistils of other flowers, or scatters its pollen grains by the force of the fall.

This Euphorbia also furnishes another contribution to the theory of sex which I have advanced. The plan on which the male and female organs are formed is evidently a common one; and the only reason why some flower heads have a pistil in the centre, and others are wholly staminate, is, that there is *greater axial vigor when the female flower is formed*. Whenever the common peduncle (below the scarlet involucre) is weak, a pistil never appears in that head of flowers. A few which seem strong neither have them, but the great majority of the strong peduncles are those which bear the female blossoms. Another interesting fact is, that the number of male flowers is less in those heads which also bear a female, than in those which are wholly staminate. This seems to add to the point I made in my paper on Ambrosia, that after the flowers have been partially formed in embryo, and before the sex has been finally determined, the female flower, being primordially the stronger, has the power of absorbing the males, or their partially formed elements, into its system. It is certainly remarkable that in both these instances the number of male flowers should decrease in proportion to the existence or vigor of the central female one.

The male and female flowers of Euphorbia fulgens are formed much alike. The female occupies the centre, and seems really but a prolongation of the main stem, on the top of which is an articulation from which the ovary springs. The capsule readily falls from this articulation when mature. From the base of the female central peduncle spring weaker peduncles, colorless, appearing indeed almost like filaments, articulated at about the same height as the female, only above the point bearing a short filament and anther—the caduceous part before referred to. No one can fail to see the correspondence of plan in these different parts, and I think that nothing but the favorable position in the direct line of axial vigor made the central flower a female one.

Cases occasionally occur in which a tolerably strong head of wholly male flowers will develop the central axis into a pedicel almost as long and

vigorous as those which bear female flowers. But the flow of vital force—if I am correct in using this term—not being quite sufficient, the final goal of natural perfection in the female form was not reached. These cases do not occur often, but are well worth looking for, as they show so clearly the dividing line between the forces which govern the male or female sex.

LABOR DIFFICULTIES.

BY A SOUTHERN NURSERYMAN.

Difficulty in getting the needed labor is beginning to tell fearfully in all agricultural pursuits, and in consequence many projecting improvements cannot be achieved. We are really short handed. The negro is becoming more and more unreliable. I started with a full force, both in my nursery and plantation; all went along well enough until the beginning of this month, when the hot weather set in, and grass becoming plentiful all over the country, owing to excessive rains, the spirit of rebellion broke out, and a strike for higher wages, causing me to discharge half of my hands. The cause of this is, that a few bad managing farmers got in the grass, and as it was a question of life or death to their cotton crops, they offered an advance of wages for the time being. This put us all to trouble more or less, and has had a bad effect on the country at large. We must have more laborers to till the soil. I would much prefer to keep the negro to do it for a good share of its products in the shape of regular and good wages; but when this class fails, we must have something to replace them.

White labor is beginning to be more abundant every day, but it is impossible to fill the places of the dead negro laborers with the native white population, as they are numerically too small. A movement is on foot among some of my friends to try a batch of Chinese. To tell the truth, I am afraid to try the experiment myself. But if these latter are skilled laborers, let them come by all means. The advent of reliable labor will induce our people to devote more attention to horticultural matters.

Grape crops very good. Pears and Apples a full crop; Peaches few. Cotton crops here very promising; also Corn. On the whole we have so far an excellent crop year.

[This was not intended for publication, we have not therefore used the writer's name or address. We publish it, because it is part of a

great question which has troubled northern horticulturists for many years. Our correspondent makes it a question of class,—we here find it one of wages with all classes. Few will work for less than the highest wages they can get.

One has a beautiful private place, and a passionate love of gardening; but one after another, men who know nothing of the business get his situation, and it is ruined. He is nearly disgusted, when he finds one who is a real gardener, and all is again pleasant to him. But good gardeners are scarce, and high wages tempt on every side. It is not long before this short dream ends,—the gardener either goes to another place where he is better paid,—is taken as partner into some nursery firm,—or starts into business on his own account. Providing the gardener fills his stipulated time, and leaves with fair notice, this is all right. It is to the interest of the whole country that these intelligent, enterprising men should fill the vacancies open to them. But it is a serious drawback to the pleasure of gardening. Thousands would have places where there are now but a hundred, if it were not for just such troubles as these. What is the remedy? Nominally "Gardeners" are plenty enough. There is not a place open that there are not hundreds after it. But that they are not better suited to our wants is in some measure our own fault. No one takes apprentices any more. "They don't pay." We don't encourage those we employ to read horticultural publications,—it is no business of ours. Horticultural Societies we do not encourage,—gardeners "take our best things there," and lose too much time. Then our Horticultural Societies themselves lose sight entirely of their mission and objects. There is not one that offers the slightest encouragement to the working gardener—the main principle on which they were founded. A premium of one or two dollars is offered for articles which, independently of the many hours of time taken in their extra production, will cost five or ten to exhibit. Hence no one tries or cares. Those who live within a stone's throw of the exhibition hall get the schedule on the morning of the exhibition, take a hasty run through their grounds on the morning, cut or collect "what they have," and that is all. What encouragement is there to good gardeners here? We say boldly that there is very little inducement for our would be gardeners to learn their business thoroughly and well. We are all too selfish, and they follow in our wake.

Our trouble is as great with laborers as with educated gardeners. There is scarcely a nurseryman north, who has not been driven as nearly crazy as our correspondent says. We do not think we are far from wrong in estimating that one-third the work is done by women and boys, in the average of northern nurseries. We do not know the remedy for this. We doubt whether Chinese, or the introduction of any other ese will help the matter one bit. Mankind all come to be governed by the same motives at length. Unless we can control the motives, it is of no avail.—Ed.]

VINELAND AND DREER'S NURSERY.

BY WALTER ELDER, LANDSCAPE GARDENER, PHILADELPHIA.

It would appear neighbor Meehan, that your humble servant had followed you on your recent visits to Vineland and Mr. Dreer's Nursery, and saw many things worthy of note, which you did not mention in your notices thereof.

In first week of June last, we observed many large bushes and clumps of *Kalmia angustifolia* and *latifolia*, on the wayside going to and returning from Vineland. They were wholly covered with their blossoms; those of *latifolia* were deep pink, and in great profusion. The plants were luxuriating in the full sunshine, far from trees. We feel assured that all our indigenous *Andromedas*, *Kalmias*, *Rhododendrons*, &c. could be grown with us to as much perfection in open exposures as they are grown in Great Britain. Let nurserymen raise them from seeds and grow the plants in suitable composts in open sunshine. And let improvers make proper preparations for them when set out. And very soon they will decorate our lawns in the rural districts. But in "City Squares" we would never think of setting them; the idea is preposterous. The British people decorate their pleasure grounds with groups of their native *Broom* and *Whin*. And why don't we try to ornament our pleasure grounds with our beautiful, blooming evergreen native shrubs; and deciduous shrubbery too, we would say.

At Mr. Dreer's Nursery, in the first week of July, we saw several hundreds of the "Golden Lily of Japan" in bloom; the flowers were very large and very fragrant, and some were semi-double,—a noble Lily. Large patches of *Pentstemons* and *Yucca gloriosa* and *filamentosa* were

also in bloom, and looked both beautiful and grand. The lately imported double *White Zinnia* was in bloom; rich and beautiful. The lately imported perennial hardy *Phlox*, was in bloom, and surpassed all the species and varieties we have seen, in the richness and sweet perfumes of their blossoms. There were several hundred plants of about ten varieties. The double *Hollyhocks* were beautiful; the rose and saffron colors were especially beautiful. But all the blooms were in the form of those of the old *War-rata* or *Anemoniflora Camellia*. The new seedling *Petunias* and *Verbenas* far surpassed in the beauties of their colors and variegations any varieties we have seen. There is a half acre of *Petunecas* and two acres of *Verbenas*. An acre of *Phlox Drummondii* in all its beautiful varieties. And how lovely was the half acre of double *Portulaccas*; of various colors, but kept distinct. The nursery is under the superintendence of Mr. William Dreer, son of Henry A. Dreer; a very polite and promising young horticulturist.

BIG TREES.

BY W. T. HARDING, FAIRMOUNT PARK, PHILA.

Some years ago, Mr. Walker, of the Golden Gate Nursery, San Francisco, called my attention to a tree of remarkable growth and character, *Eucalyptus amygdaline* which promised (so vigorous there) to be a mammoth in a few years. No doubt our good friend, Josiah Hoopes, saw the same tree there, and as he has mentioned extraordinary instances of arboreal growth, especially of the *Eucalyptus* and *Pinus*, it brings back to memory some ideas of those "Kings of the forest glade," whose regal grandeur made me exclaim, "there were giants in the earth in those days." Between Brisbane and Praramatta, some 60 miles from Sydney, stands a tree (or did then), some 20 years ago, a *Eucalyptus monstrosa*, truly a monstrosity in growth, which measured 78 feet in circumference, height 35 feet. Imagine a huge Cauliflower of such a size, and you get the idea. I do not know that it has been described as *E. monstrosa*; but I saw many trees in every stage of growth, identical with *monstrosa*. I have some vivid recollections of trees whose tops were "up above the world so high,"—from 400 to near 500 feet. Look down from such an altitude, and see a tree perfect in all respects,—call it a shrub or herbaceous plant, or what you will, it is a miniature tree;

Erica cerinthoides nana some few inches high. I have often seen and admired the *pigmy tree*, so abundantly growing at the *Cape of Good Hope*, with others of more *noble mien*.

Should you, Mr. Editor, ever make an over-land journey from Sidney to Adalaide, "look out" and you will see the *big Gum tree* I mention. On the eastside of said tree you will see the initials W. T. H., rudely inscribed.

THE AMERICAN CHESTNUT.

We give below two papers on the Chestnut. The first is by one of the firm of Storrs, Harrison & Co., written at our request. The second is by the editor, being his remarks before the American Association for the Advancement of Science, at Troy, last month. We have from Storrs, Harrison & Co. a cut which explains Mr. Meehan's idea. The artist has taken



a few liberties with nature, but the two distinct female flowers, the other from the axils of the classes of flowers, the one in connection with the leaf, are well shown.

THE AMERICAN SWEET CHESTNUT—*Castanea Americana*.

FROM STORRS, HARRISON & CO.

Once our magnificent forests in their native beauty and grandeur called forth the admiration and astonishment of European travellers and the early settlers and pioneers of this country; but over a large part of the older States, the glory and beauty have long since passed away. Only a few of the old monarchs of the forests of centuries growth yet remain—and although we are comparatively but a young nation, yet such has been our prodigality and wastefulness, we already seriously feel the want of timber for fuel, building and fencing, and with the certainty of an ever increasing demand in the autumn. Our Agriculturists justly feel alarmed at the prospects, and inquire, what can be done to supply our own need, and the wants of those that are to come after us? We answer first, practice the most rigid economy in the use of timber for any purpose; protect what remains of the native forest from the depredations of cattle, so that the young seedlings may have a chance to grow and supply the place of the elder trees.

2nd. Plant a portion of the cleared land to forest trees, such as are best adapted to the soil and climate, and promise the most value for future use.

Over a very wide extent of country, embracing several degrees of latitude, the American Chestnut grows naturally, a most useful and valuable tree. After much inquiry and thought upon the subject, we do most heartily commend its cultivation wherever it can be grown.

First. Because it is hardy, grows rapidly from seed on the shoots, from stumps of parent trees, and affords the most valuable timber for building and finishing lumber, as well as for posts and rails for fencing.

Second. It is a beautiful tree, covered in early summer with its long pendant tassel-like blossoms and rich luxuriant foliage, and in autumn with choicest nuts.

Third. It is adapted to a great variety of soils, thriving equally well on sandy, clayey, loamy, gravelly and rocky land, if not wet.

Fourth. When grown from seed in the nursery it can be transplanted with perfect safety and success.

Fifth. We have no native tree that equals the Chestnut for rapidity of growth and durability of its timber. Usually the more rapid the growth, the sooner the decay. To this general rule the chestnut is a remarkable exception. While it grows more rapidly than most any other tree, the timber when cut and exposed to the atmosphere will last longer than almost any other, as the posts and rails of very old fences can testify.

Sixth. The Chestnut possesses one great advantage over most other forest trees in reproducing itself. After having been cut down for timber, young shoots will start from the stump and grow with wonderful rapidity, in a short time reproducing more wood than was in the parent tree. Sometimes these shoots are numerous, but are always under the control of the owner to thin out as his judgment may direct, for his future use.

When grown especially for fruit, the trees should be set as much as 40 feet apart, so that each may have room to form a wide spreading head. They will bear fruit in favorable localities from 5 to 9 years from planting, and the fruit always brings a good price and is constantly increasing in value.

For timber, large quantities are grown in England, planted closely together, sometimes as near as five feet each way, planted in this manner they produce long straight poles for hurdles, hop poles, &c. In this country, when we require so much timber for fences, stakes and posts for grape growing, what would be more convenient on a farm than a fine large chestnut grove, where the farmer could at any time resort for timber with the assurance that from the apparent worthless stump left in the ground, there would another season spring up a growth, Phoenix-like, more vigorous and numerous than the trees removed. In this manner they may be cut, not only once or twice, but maybe cut and renewed every few years for centuries, as the Chestnut groves and forests in England fully demonstrate. With all the superior excellence of this tree, we wonder that its propagation has been so much neglected. Then we say plant the Chestnut, that you may enjoy its beauty and shade, its fruit and timber; and that you may leave a rich inheritance to your children; plant it on the broad prairies of the West, plant it on the thin worn out soils of the East, plant it in lawns and streets, plant in orchards and groves,

plant it wherever you may want a useful and valuable tree, and future generations will rise up and call you blessed.

NUTRITION AND SEX IN PLANTS.

Read before American Association for Ad. Science.

BY THOMAS MEEHAN.

In my paper on the laws of sex in plants, which I read to the Association last year, I gave some account of a few of the leading facts I had observed, which seemed to indicate that a higher degree of vigor or vital force was necessary to produce the female than the male sex in plants. I have not met with one fact which has suggested any other conclusion; nor have I heard any fact suggested by others which could lead to any other opinion. Wherever there has been any change in the sexual relations, the male flowers or organs are invariably associated with declining vigor, while only in those parts of plants most favorable to the highest state of vitality, are the female flowers most numerous, or generally found.

This theory is so capable of easy demonstration by any one who will personally examine the first monoecious tree or plant he meets, that I feel sure nothing further will be needed from me to sustain it. I propose now to go a step further, in the endeavor to ascertain the exact laws of nutrition, by which we may control these sex producing forces respectively.

I have here some specimens of *Castanea Americana*, our common sweet Chestnut, as my first contribution to this class of facts.

But first I would call attention to the fact, that there are two classes of male flowers in this tree. It is scarcely possible that this should have escaped the eyes of other observers, but I find no reference to it in botanical works. One class of male flowers comes out from the axils on half starved shoots, the other class terminates the strong vigorous shoots which bear the female blossoms. Those of the former class have their flowers set densely on the rachis,—on the latter they are somewhat scattered, and do not open until a week or ten days after the latter. The numerous flowers we see on the Chestnut trees are of the former class, and generally have mostly fallen before those associated with the female flowers open. I think it likely that one of these classes does not perform the usual fertilizing functions, but could not satisfy myself positively. The interest for us here is to note the antagonism, so to say, between the male and

female blossoms. The comparatively weak spikes show that they were formed only after the female flowers had received matter enough for their perfect development. Only the surplus matter goes to form the male flowers at the apex. This is better shown by the fact that often there is no prolongation beyond the female flowers; no male blossoms. At other times only a few—never as we have seen, the number which appears on those spikes which are wholly masculine in their nature.

In regard to the influence of nutrition on sex, another specimen I exhibit is from a tree at least forty feet high and six feet in circumference. It is on my ground, stands out by itself, and has borne fruit regularly and in good crops annually. This year the leaves are all streaked with yellow, as in this specimen.

Horticulturists well know that this appearance on the leaves of plants arises from an interruption of the nutritive functions. If a branch be partially ringed to induce fruitfulness,—or if the roots be injured in transplanting,—or rotted by an over supply of water, a yellow tint to the foliage is the invariable consequence. In some way then this Chestnut tree has this season met with some check to its nutritive system,—received a blow to its vitality, which has resulted in this yellow tinted leaf. The effect of this on the sex is, that though thousands of male flowers are produced, there is not one female flower, one young chestnut, on the whole tree that I can find.

I think this instance satisfactory as far as it goes, that defective nutrition is one of the agents which operate on those laws of vitality that govern the sexes.

CHANGE OF COLOR IN FLOWERS.

BY MR. C. CRUCKNELL, HARRISBURG, PA.

Your editorial in the August number of the *Monthly*, on "varying colors in the same plant" brings to mind a circumstance worth repeating. During the past winter I had occasion to call on a friend of mine, with a view of obtaining some white cut flowers. A pure white *Ageratum* in his collection pleased me so well that I begged cuttings of the same to add to my stock of white winter flowering plants. The cuttings rooted and bloomed in the greenhouse, and have continued flowering in the ground all summer, but the flowers are all blue. There was no mistake in the cuttings as I cut the white flowers from the cuttings before putting the latter in the sand box

and no person had access to them but myself. It remains now to be seen whether they will return to the original color white, after having been housed for the coming winter. Singular, is it not?

[What species was it? Please send a few leaves.—ED.]

BEAUTIFUL BLOOMING SHRUBBERY.

BY CHRONICLER.

Prunus trilobata is a charming shrub, lately introduced from China. Its blooms are bright pink, semi-double; and produced in great profusion, which covers the whole plant. It is hardy in the nurseries of Ellwanger & Barry, Rochester, New York—who have a colored plate of it in their Catalogue for 1869.

Deutzia crenata flora pleno is of stately and upright growth, with an immense profusion of double, pure white blooms in May and early June; flourishes upon various kinds of soils, and is of the most simple culture.

Spiræa callosa alba, a very choice, beautiful and easily grown shrub; producing white blooms from June to September. In habit it is dwarf and handsome.

Spiræa Reevesii robusta grows twice as large as the old Reevesii, and the blooms being twice as large, it appears as if doubly numerous, covering the plant wholly with white hawthorn-like blossoms in June, and a small bloom in September.

Spiræa eximia is one of the best of the spike blooming varieties; the color of the blooms is a bright rose, and produced in immense clusters in July. The plant is of thrifty growth upon various kinds of soils.

The above species are not yet generally known, but many that are well known, are not surpassed in the beauties and profusions of their blossoms in their seasons of bloom; the following are examples: *Robina hispida*, *Weigelia rosea*, *Cydonia japonica*, the scarlet and the white blooming; *Spiræa prunifolia*, *Lonicera tartarica* (Tartarian Honeysuckle), *Deutzia gracilis* and the double flowering; dwarf Almonds, the rose and the white. All are general favorites, and will long be so.

All the foregoing are of showy bloom, and

some of the species of fragrant blossoms should be set among them to make the job complete. Say the various species of Lilacs, *Calycanthus*, *Berberis*, *Ligustrums* and *Philadelphus coronarius flora pleno*, &c., with a few of the sweet scented Honeysuckles grown as bushes, which bloom nearly all the season in that way.

It is difficult to describe the beautiful shrubs without appearing to exaggerate; yet we have never read a description, nor seen a plate of a choice shrub that conveyed the full loveliness of the plant itself.

All the deciduous shrubs thrive upon various soils and in different exposures. Upon small grounds they will flourish and bloom beautifully under the partial shade of trees, and upon large grounds in the full sunshine. They bloom most profusely where the soil is not too highly manured.

ARBORETUM AT CHILLICOTHE, OHIO.

BY J. H. CREIGHTON.

The Arboretum referred to in the last *Monthly* is in Delaware, Ohio, (not Chillicothe). I have requested my friends heretofore not to notice it in the papers, as it does not yet appear as well as it will in a few years. I will however state, that it is intended to be a collection of all the hardy trees and shrubs that will stand latitude 40—one of a sort. It occupies about 30 acres of ground, being the College campus of the Ohio Wesleyan University. The grounds are remarkably suited for such a purpose. The landscaping is under the care of Mr. W. Nerney, of Cincinnati. The trees are planted strictly according to their natural families, which I believe is the only collection thus arranged in this country.

It does not make much of an appearance yet, many of the trees being very small. Nor have I desired to hurry them into growth. Nor are all the trees located yet—the ground not being altogether ready. But I think by another year when they are all located, it will be the largest collection of SPECIES (not *fancies*) in this country I would not however convey the idea that I adhere strictly to *species*.

I find it a very different work from mere ornamental planting, and would here take pleasure in saying that I have had the continued assistance of the editor of the *Gardener's Monthly* and Prof. Gray of Harvard.

EDITORIAL.

AUTUMN.

"When Flora from her azure home,
Came gently down to grace the earth,"

it may well be questioned whether she descended in the spring or autumn time. We imagine that not as an infant child came she, with the delicate sweetness of life's tender years; but with full grown charms, rich and ripe as in the purple grape, or the glorious autumn tints of the mellow trees. Yet we know that the spirit of autumn is not popular with the poets. They will not even claim it for the fair sex. It is but a ruthless destroyer,—a barbarous, heartless man! One of them says:

"Better the tie at once be broken,
At once our last farewell be spoken,
Than watch him, one by one, destroy
The glowing buds of hope and joy—
Than thus to see them, day by day,
Beneath his coldness fade away."

But to us the spirit of autumn seems not to be one of the destructive kind. The buds are not destroyed, but touched up by the delicate hand of a master artist,—the full grown Flora herself. It may be as Moore says, that

"Tis sweet to hold the infant stems,
Yet drooping with Aurora's gems,"

but we are sure that he who holds the stems of autumn strewn with

"The smiling orbs which press,
Their laughing cheeks together on the vines,"

will find this season no less enjoyable for all. Yes! we like autumn. It deals with results. We see in it thought incarnate. Here is the fruition of all our hopes; the ripening of all our purposes. If there is anything at all in the idea of repose; surely it is here.

So when we build an altar to our beloved Goddess, we shall not lay the foundation stone when pale snowdrops simulate the real summer blossoms; and yellow daffodils emit odors not at all suggestive of the atmosphere of elysium. We shall set up our idol when the sun is going down, and its lengthening shadows shine on the crimson leaf, and the scarlet berry, and the lingering *Petunia* blossoms and the *Tuberoses* give out an increase of incense as the twilight grows. In the hands of the image we shape will not be Tulips, or Crocus, or gross Hyacinths,—temptingly sweet, though the odor of the latter be; but we shall have Asters, and Goldenrod

and Betonys, and the graceful and sweet scented *Neottia*, or even with a *Witch Hazel*, with its fruit and flowers mixed all in one.

Nor shall we erect our temple where the early sun's rays fall,—where every gleam of light, and every breath of air is necessary to set forth the floral beauty,—but out on the open lawn where rustling leaves make their own music worship,—where the stillness of evening is one of the praises of the service, and where nothing in the air or sky can add to the beauty of the terrestrial scene.

This shall be our offering to Flora. Here will we present our petitions for Horticultural progress,—here invoke all blessings on all votaries of Flora who worship with us.

Yes, to us autumn is the happiest garden season of the year. We do not see in it, as some do, the end,—a final destruction of all we loved; but only a temporary parting to meet again as pleasantly as ever. Then we can say with the poet before quoted.

"Best meeting after many a day,
Of widowhood passed far away—
When the loved face again is seen
Close—close—with not a tear between."

PRIOR POSITION IN TREE TRANSPLANTING.

Many persons have an idea that trees should be set after removal just as they grew before; and when they give a nurseryman an order, insist that the south or north side should be marked as a guide. Mr. L. Trouvelet in the *Proceedings of the Boston Society of Natural History*, attempts to prove that there is some reason for this popular impression. He believes trees all have a natural dip, uniformly in certain directions, and he says:

"Three years ago I saw in Malden 20 beautiful Pear trees transplanted with the greatest care; all these trees were of pretty good size, being some years old, and they all bent very strongly. They were set without regard to direction; five or six of these trees happened to be placed in about the position which they must have had when growing, the remainder were set in all directions. I went many times that way to watch the success of this small orchard. The very first year about one-half were completely

dead. The second year took five more, which had been languishing all the summer, and now five out of the 20 are living and in good condition, and strange to say, these five are those which were set with their branches dipping east."

Mr. T. seems to forget that thousands of other people have set not 20, but thousands of Pear trees "without regard to prior directions," and that not "one-half" but none die. Trees usually die in transplanting, even when the greatest care has been given them by outsiders; when the same trees, in the hands of the nurseryman himself, would have lived. In the nurseries of the country millions on millions of trees are annually planted without the loss of one in ten thousand; yet without regard to prior direction. Surely such facts as these should have been looked at in a scientific paper,—rather than the limited experience with a few score of trees. We do not profess to judge whether there is any ground for this theory or not; but merely to point out the insufficiency of the evidence here given. It is a very important matter practically; as if such an idea should prevail under the sanction of the Boston Society of Natural History, a vast amount of useless work would be put on the nurseryman in marking the compass points on his trees.

WINTER EFFECTS OF SUMMER DROUGHTS.

Western Horticulturists have suffered much from a protracted drought this summer, and it may not be amiss to remind them, that the consequences will not be over with the first rain. It is well known now that the vitality of plants are affected by untoward circumstances, pretty much as animals are. A half starved man, or one affected by a long enervating summer's heat, will have his constitution so weakened, that he falls an easy prey to the first enemy. So a plant which grows in poor soil, has not the power of storing up latent heat, as it has nothing to store from, is easily killed by a slight frost, while under other circumstances it would endure very hard weather. Again a plant in very wet ground, is incapable of properly organizing its food in summer, and it also gives way under a slight cold.

The effects of great summer heat is just the same. The great evaporation takes all the moisture, and none is left for the elaboration of food.

A plant which suffers for want of water in summer, easily dies in the winter time.

These points are not merely theoretical; but are explanations of facts which have actually occurred. It will therefore be well for those who have rare plants or trees which they prize, to look ahead at these probabilities.

One of the best things to be done as a precautionary measure, is to top dress with a little manure any tree likely to suffer. Manure not only feeds roots, but encourages their production; and this will increase the opportunities of the plant to lay up the necessary heat giving material, yet before the growing principle ceases its active work. Beyond this a little protection from cold winds, where the valuable specimens are in exposed places, will be very useful.

It may not be out of place to notice that with the discovery of these facts about the causes of winter destruction comes a new view of the value of thermometrical observations. At one time it was supposed that the marking of a thermometer would indicate exactly the degree of cold a plant would stand. It was so with animals. But we now know that we often suffer more from heat when the thermometer is at 85°, than when at 95°, and some will suffer more at one temperature than others will. This is owing to the varying nature of other elements as well as mere heat,—and the varying degrees of vitality in individuals. The thermometer therefore is of little value in determining what a plant will stand, and the long tables of plants and degrees, people used to take so much trouble to make up, are now of little more use than waste paper.

Here is the axiom to remember: the hardness of plants is dependent on their vitality, and this is again dependent on their ability to maintain heat under unfavorable circumstances.

THE CHASTE TREE.

Very few persons who see the common *Verbenas* in our gardens know that it belongs to an order of trees and plants amongst which are some of the grandest and most useful known. The Teak wood for instance, which forms the most valuable ship building material in the world—far more famous in this respect than the long celebrated oaks of England, which for a "thousand years will brave the battle and the breeze,"—is of this order of *Verbenas*, *Verbenacea* of the botanists. Not only for their majesty; but for the

beauty of their blossoms also, are many admired. Unfortunately for us, most of them are inhabitants of the tropics of America or Asia, and therefore out of our reach in the decoration of our gardens.

We have, however, a representative in *Vitex agnus castus*, which really makes a valuable flowering shrub. This is a native of the shores of the Mediterranean, and though many of the upper branches get killed when the thermometer goes below zero, there are always enough parts of the branches left to produce a great abundance of flowers next summer. They commence to bloom with us early in August and last two months. All the plants we have ever seen had lilac or lavender colored flowers, but we saw one recently in the beautiful collection of rare trees and shrubs on the private grounds of Alfred Cope, near Philadelphia, which had them of a rich purple. This shows that new varieties can be raised from seeds. The flowers are in spikes, from 6 to 9 inches long; and the leaves are five to seven leaved or fingered.

It derives its name of Chaste Tree from its supposed power in the middle ages to drive away thoughts inconsistent with the vows of celibacy taken by those who entered the monastic state.

TREE CULTURE OF THE GRAPE VINE.

Some years ago we republished a paper from the "Proceedings of the Philadelphia Academy of Natural Sciences," in which it was shown why grape vines grew better when running over trees than any where else. There was motion in the tendrils, and the amount of food required to produce this motion was a great strain on the nutritive function of the vine. This motion of a tendril in search of something to cling to continues for ten days or so when it dies. If the plant is clambering over a tree, the tendril finds something to cling to almost as soon as it is ready for support. Then there is no waste of force in useless motion. The whole energy of the plant is spent on healthy growth.

It is remarkable that no use has been made of this discovery in practical grape culture. We still go on in the most extensive manner, failing day after day under our old systems,—getting perhaps a three or four year crop,—feeling that we have one of the best grape countries in the world; and then failing utterly and concluding as positively that our country is totally unsuited to grape culture.

Often people who live near us, call and say grapes cannot be grown in Germantown. We simply point to a vine from our office window, the picture of health and productiveness, which has been allowed to have its own willful way. It is but twelve years old, and was planted near the root of a weeping ash tree, simply to help its drooping branches to make shade. It has covered the ash, gone over a 20 year old Silver Fir, a White Pine, a Himalayan Pine, a Larch 40 feet high, and sundry other things; and there is no reason that we can now see why it would not cover any amount of low bushy trees that could be got on to a quarter of an acre of ground. So is another, an *Isabella*, which was planted by a Morello tree. There it hangs with its hundreds of bunches, although it is looked on as a first class article of horticultural faith that the *Isabella* will "do no more good in these days in Germantown."

Now we do not recommend vines to go untrained or untrimmed over trees; but we do most certainly believe that a good system of tree culture of the grape would make the fortune of any one engaged in it.

We find by long experience, that it is no use to place truth before the people, and let it grow its own way; and we now give notice, that having by a long course of observation and study, and practical results arrived at the certainty that this kind of a grape system is the only hope for our country, we shall cultivate this idea by all manner of means, and shall not allow it in future to be crowded out by rank weeds of any kind. We shall do for it as we have done for surface root culture, hold it up before the horticultural community at all sorts of times, and in all sorts of ways. We think this a fair notice to every reader of the *Gardener's Monthly*, who does not want to have "tree culture of the vine" forever before him, to close his accounts with the publishers at once, and thus drop into his horticultural grave.

To day we shall merely say, that in the warm climate of southern Italy, where the hot weather is so very much like our own, this system has been in existence for ages, and therefore we do not ask for the Germantown grape vines the credit of any new discovery. The first thing they do in planting a vineyard is to set out Maple trees only four feet apart. These for the first year are trained so that arms shall come out at regular distances all up the trunk of the tree, as regularly as the branches come out of a

Larch or a Pine tree. By summer pruning these trees, they can be kept into low and permanent shape, just as well as an Osage Orange or Honey Locust in a hedge. The trees are rarely allowed to grow above fifteen or twenty feet high, but wine to the amount of a quarter to half a barrel per tree is the usual average. The second year after setting out the tree the vine is planted against it. In order to give it a good chance against the tree a two or three years old vine must be planted. Our "rootlings" would not do. The tree would starve and dry it up. Not even in France and Germany, where the people are so enlightened, and read all the new ideas in the papers, have they anything like the success in grape culture, which rewards the toil of these ignorant Italians, not twenty per cent of whom can read or write.

We fancy the great objection with Americans will be the amount of labor this system will call for. The trees as well as the vines must be fed and hence top dressings have to be given every year. A lazy system suits us best. When we commenced to recommend grass for our orchards not a few jumped at it, as a system which would give them fruit by absolute neglect. Since they have come to learn that the surface root culture really takes more labor than the old deep culture plan, many prefer the old one of having a few large fruit once in a while on unhealthy trees, to continuous and regular average crops. It is so much easier to grow at the climate, than to get the fruit of the earth by "the sweat of the brow."

DROUGHT AND GRAPE CULTURE.

It may be remembered that when we returned from the West after the excessively dry season of 1867, we pointed out that it was hardly possible to have the soil too dry for Grapes. While even corn died out on the hill sides, the Grape flourished gloriously. Some we know took up our hints. Many who had but flat ground ridged it up, and set their grapes on these artificial elevations. These have had their reward.

But there are many who are not yet convinced. They contend that "one swallow does not make a summer," and that the results of one dry season prove nothing. But we rather like these people. Thomas who was called Didymus, and Saul, surnamed Paul, did as much good as those of a less hard headed description, and possibly

these grape doubters, though coming in at the eleventh hour may be as worthy of a full reward as those who have been with us during the full day's work.

This eleventh hour is now come. Another "unprecedented" dry season,—another magnificent crop of grapes. Surely here are swallows enough now to satisfy the most skeptical that surely the full summer of grape culture is come.

Yet we shall for some time no doubt have, as we have hitherto heard, the most roundabout excuses for failure,—the most unreasonable explanations of why "our climate is so unsuited to grape culture." We do not by any means believe that thoroughly dry ground is the whole battle against the foes of grape culture; but we do most confidently assert that with this, half the victory is won, and that after this "large bodies of water" "pruning," or even that great bug-a-boo "varieties" will have any very great influence either way on the success of Vinyard management in America.

THE BALSAM.

This, often called "Lady's Slipper" by our people, grows so easily in the open air of our country, that there seems little inducement to pot culture. Yet those who have never seen them under the hands of first-class English growers, have no idea how beautiful they are when pot grown. Nothing like them is possible by open air culture, any more than the grapes in the open air of Italy or Spain can compete with those raised in English hothouses. A few fine specimens in pots would make charming objects for garden decoration, and in hopes to encourage this, we give the following from a practical grower, in the *London Journal of Horticulture*:

"I am very glad to see that in several gardens the old love for the Balsam is being rapidly revived. Gardeners find out that in order to get up a good floral display with as little trouble as possible, the Balsam is one of the best plants they can grow. I find it as useful as ever, and I think there are few things easier grown, or that will reward the cultivator with so much bloom according to the trouble of growing them. It is quite a summer and autumn decorative plant, and its cultivation is most conveniently commenced when bedding plants are cleared out.

The best plants I ever grew were nearly 4 feet high, and some of them 3 feet through, and fully bloomed from bottom to top. The following was the treatment given:—The seed was sown in thumb-pots during the first week in May two seeds in the centre of each pot in light sandy soil, and placed in a Melon frame at work. When up and the seed leaves well developed, the weakest plant was taken away, and the other shifted into 60-sized or 3 inch pots; they were plunged and kept near

the glass. Their next shift was into 48-sized or 5-inch pots; but while they were growing to this stage, preparations were being made for them to occupy a place to themselves—namely, a heap of spent hotbed and green manure in equal parts thrown together, well mixed, and heated almost to a blackness; a bed 3 feet high at back and 2 feet in front, and long enough to take six lights, or two three-light garden frames, was made up, the inside of the frames filled up to within a foot of the glass with decayed leaves, and when the whole became warm the plants were plunged into it, and in these places they were grown until they were coming into bloom, when they were taken into more airy quarters for their buds to open. In the early part of the time they are growing in these places an intermediate temperature must be maintained; give the plants plenty of light, at all times keep them near the glass, shift them into larger pots as they require it, and give them a rich soil composed of equal parts of turfy loam and rotten manure, with sand added, using the soil coarse as the plants increase in size.

In potting, let the plants down into the pots, so that the cotyledons, or seed leaves, shall be level with the soil. Attend well to watering, of which when growing, the plants like an abundant supply and often, likewise sprinkling the foliage to keep the red spider in check. Turn the plants at regular intervals to keep the shoots equally balanced and the plants of good shape. If the plants do well they will throw out strong side shoots, and these in turn will throw out laterals. The first-

named should be tied or pegged down as low as possible, and the latter kept properly staked-cut, which will add much to the beauty of the plants. They will all flower. As the plants increase in size and height, the frames must be hoisted on blocks of wood or on bricks, and the air that is thus admitted under the plants will keep the foliage of the lower branches both strong and healthy. 16 sized or 8-inch pots will grow very fine plants, but 12's or even 8-sized pots may be used when extra sized plants are wanted.

Soon after the last shift, or when the pots are filled with roots, a liberal top-dressing of rich manure should be given. In this the side branches will root vigorously, and if manure water be regularly applied, the plants will fully develop themselves. It is my practice, and I can recommend it, to pull off regularly the largest flower buds until every branch is regularly furnished with them; then let them flower, and the result will be such a mass of bloom as will, perhaps, surprise the cultivator himself.

After the plants have attained their full size, and the pots are full of roots, water must be given most carefully, especially manure water; for if the soil becomes too wet, or the water not able to pass freely through the drainage, the plants are liable to rot off at the neck suddenly. It is now so easy to get seed that will produce a good per centage of double flowers, that the old plan of proving the flower by first limiting the plants to small pots may be dispensed with. I generally grow Smith's packet of nine colors—THOMAS RECORD, *Lillesden*.

SCRAPS AND QUERIES.

FAILURE OF PEARS.—A Salem, N. J., correspondent writes: "With me, as with every one else, Pears have proved a failure. I have several hundred trees, dwarf and standard, and have taken as much pains as possible, and used my best judgment in their management and cultivation. Notwithstanding all of which they have never produced fruit enough to pay their cost.

For a few years I tried them with clean cultivation, and their growth was as rapid as could be desired. In the spring there would be an abundant show of blossoms, but followed by no fruit. This has been more particularly the case with a row of over 100 dwarf Duchess. Any one without experience, to look at them in the spring when loaded with bloom, would expect to see them overloaded with fruit—and yet they have not for years past averaged one pear to the tree.

Having failed with clean cultivation, I determined to sow the orchard down to clover,

and for the last two years the clover crops I have no doubt averaged at the two cuttings 3 tons to the acre. But while the trees have still made sufficient growth they still refuse to bear fruit. The blossoms seem to be sterile, having no ovaries set, no fruit and wither and fall off.

To add to my disappointment last year and this, the blight has proved very destructive to my trees. I have lost Knight's Monarch, Glout Moreau, Urbaniste and several other varieties. And they go with a rapidity that bids defiance to all efforts to save them. Indeed, I hardly feel disposed to waste any more time on them. The healthiest and surest pear tree I have is the Andrews, which being an old one when I planted out my orchard, I put it near a wagon house where the ground has always been trodden as hard as a pavement."

[Notwithstanding the apparently vigorous growth of these trees, there is little doubt but that the vitality was defective, and there was not really vital stamina enough to bring the

floral organs to perfection. We have stated this as our belief before in the magazine, and have since seen many instances confirming this. Mr. Hamilton, of Vineland, N. J., once had trees which behaved similar to these. Plenty of flowers but no fruit. One variety, however, seemed to do better than others. He grafted their tops all over with this one, and left many of the bottom branches, thus heading off half the trees. To his astonishment these bottom branches left, afterwards bore fair crops. The explanation clearly was that there were not healthy roots enough to bear the great strain of flowering, by cutting away half the branches, the roots had half less work to do, and then a crop resulted.

We suspect that trees whose vitality has been once injured by bad systems of culture, would hardly be benefited soon by merely putting in clover, or any other improved plan. We cannot advise positively without seeing what is really the matter; but so far as we can understand our correspondent's trouble, we should trim the trees severely next winter, and top dress heavily about them.

In our own district this year, almost all Pears in the prevalent garden culture are failures as usual; while all in the style we recommend are borne down by the weight of fruit. One of our trees,—a *Beurre d'Arenberg*, which by the way cannot be grown at all in the "approved" way, and which is being erased from Catalogues as worthless,—is so full that we are afraid at this writing it will break to pieces. The tree is about thirty feet high, and cannot have less than two thousand Pears on it, and every leaf without a blenish. We have had it in grass fifteen years, and are willing to place it in competition with any tree of its kind under the clean surface culture, in the United States. We do not know of anything more remarkable than that, with the most overwhelming facts which we have brought forward during the last ten or twelve years to show that the hot burning surface soil is our great foe in Pear culture, and that with this care of surface roots we have really the best climate and soil in the world for this fruit, there should be so much reluctance as there is to change our bad habits and learn better ones.—*Ed. G. M.*]

PEONIA MOUTAN on the Mississippi River. A correspondent assures us, on the authority of the *St. Louis Journal of Agriculture*, that this is

abundantly wild near Jackson, Miss. The editor of the *Journal* is too good a botanist to have made such a mistake as this. There must be an error somewhere else.

PRESIDENT WILDER IN ENGLAND.—The *London Gardener's Chronicle* referring to Mr. Wilder's Californian tour, says his name is deservedly held in the highest esteem in England as in America.

GRAFTING LEMON TREES.—*M. B., Osceola, Pa.* "I have a Lemon tree five years old from the seed, which does not bear yet. I am told it will not unless grafted. Is this so?"

[It will bear in time, and frequently be healthier than if grafted. Lemons vary in quality as other fruits do from seed, and grafting is chiefly to secure the special variety wished for. A graft taken from a bearing tree, bears generally in three years. Yours will probably bear next year, or the one following.]

GROUND VINERIES.—A "subscriber from the first," writes as follows: "Your publication, in the *May Monthly*, of Dr. Houghton's experiment of ground Vineries in his essay is very interesting, and has attracted the attention of many; but it is so desultory that one does not know where to begin and where to end. It is not practical; too experimental. As Rivers has given his procedure in his *Miniature Fruit Garden*, 13th edition, and of course in his last 15th edition more full, and likely remarks in other Periodicals, perhaps you could give us extracts from these works, which are not in circulation in this country, and too often carried out too carelessly by amateurs. Yearly experiments too often go on for a long time and no result obtained of consequence. Many are apt to think they can improve the long tried experience of practical men like Rivers. If Dr. Houghton will look back to Mr. Saunderson's Report, Department of Agriculture, 1867, page 25, he will read some important results of native grapes fruited under glass. If you have the means, do give your subscribers some more insight and clearer method to decidedly pursue the thing. It takes a year to carry out and prove, and if not successful, another year is lost. Most likely the English gardeners are the most reliable to follow, and perhaps you can let us have some of their methods and success in some of your future numbers. No doubt as Mr.

Saunders says, our Catawba may become a very fine thing, and also some of the others.

If you gave your subscribers that part of Mr. Saunderson's report of growing native grapes under glass, it would convey to many information not in every one's possession, and set the experiment agoing. It is a simple and cheap one, and practical in our little yards. At small expense even this year a temporary sash might be put over our grape vines in some situations, and give an idea.

[We shall be glad to hear from Dr. H. or other correspondents.]

HORTICULTURAL EDITING.—We notice that most of our exchanges have their editors away on some sort of excursion or other, and their chairs are occupied by other "editors *pro tem.*" The queer part of the affair is, that these papers were never so entertaining or instructive, and it would seem that the new editors are in as dangerous a position as was Lothario in *Don Quixote*. Only one seems to have got into trouble with the readers of the papers, and that is Mr. Clemens. He thus describes his fix:

"An old gentleman with a flowing beard and a fine but austere face, entered and sat down at my invitation. He seemed to have something on his mind. He took off his hat and set it on the floor, and got out of it a red silk handkerchief and a copy of our paper. He put the paper on his lap, and, while he polished his spectacles with his handkerchief, said:

"Are you the new editor?"

I said I was.

"Have you ever edited an Agricultural paper before?"

"No," I said, "this is my first attempt."

"Very likely. Have you had any experience in agriculture, practically?"

"No, I believe I have not."

"Some instinct told me so," said the old gentleman, putting on his spectacles and looking over them at me with asperity, while he folded his paper into a convenient shape. "I wish to read to you what must have made me have that instinct. It was this editorial. Listen and see if it was you that wrote it:

"Turnips should never be pulled—it injures them. It is much better to send a boy up and let him shake the tree."

"Now, what do you think of that?—for I really supposed you wrote it."

"Think of it? Why, I think it is good. I

think it is sense. I have no doubt that, every year, millions and millions of bushels of turnips are spoiled in this township alone by being pulled in a half-ripe condition, when if they had sent a boy up to shake the tree—"

"Shake your grandmother! Turnips don't grow on trees!"

"Oh, they don't, don't they? Well, who said they did? The language was intended to be figurative, wholly figurative. Anybody that knows anything, will know that I meant that the boy should shake the vine."

Then this old person got up and tore his paper all into small shreds, and stamped on them, and broke several things with his cane, and said I did not know as much as a cow; and then went out and banged the door after him, and, in short, acted in such a way that I fancied he was displeased about something. But not knowing what the trouble was, I could not be any help to him."

WHITE TRILLIUM.—In reference to a statement of ours, from the proceedings of the Torrey Botanical Club of New York, about the change in color of a dark Trillium to a light one, we have the note below from Mr. Hall. Of course the true man of science is as careful to give facts which may operate against his theories, as those which aid them; but some do not always do so. Mr. Hall's present letter shows, that Trillium does not always change. But this does not affect the fact as before recorded, of change in other instances. He says:

"In regard to *Trillium erectum* var. *album*, I have been informed by Mr. Wm. Bower of our club, that a plant of this sort—color of flower "creamy green," as he says, which I sent him six years ago or so, has every year blossomed in his garden with the same color, and is a healthy plant, that seems to be one instance of permanence. My opinion as to the general run of wild ones is unchanged, there may be permanent var. *album* plants in the wild state, whatever cultivation may have to do with it; but I believe that they are generally inconstant."

HARDINESS OF PRUNED RASPBERRIES.—A correspondent asks a question which we are not prepared to answer, and should like to have the views of our experienced readers about it. He says: "I am told that Raspberries and Black

berries when in cultivation, are not hardy unless summer pruned. Is this so?"

At the outset, it is a well known fact that cultivation renders these plants tender. We question whether the Lawton Blackberry would have ever died down, if it had been suffered to remain in that old fence row at New Rochelle; but when grown in gardens, it is frequently killed. Any rule, therefore, founded on general laws of Physiology, would be worthless in this case. Such a rule as abstract argument, would be that pruning made the plants less hardy. But we know that good growers hold, that by stopping back the young canes in July, the plants are rendered hardier; and we are inclined to think that what experience has taught us in this matter must be true. Still we would like to know what is the general experience, before pronouncing a positive opinion.

FRENCH MEALY APPLE.—A *Kansas* correspondent writes as follows, but we are not able to answer the query: "I have been requested by a gentleman originally from Canada to try and find where trees of an apple that he says was in Montreal as French Mealy. I know of no source that I will be so likely to obtain information through, as the *Monthly*. The apple is described as a summer apple, with red skin, pink flush, large, sub-acid, skin very thin; apple one of the best seen in the Montreal, Canada, market. If you know of a nursery that is growing this apple, please let his name come. If the name is not correct, please give correct name."

DOUBLE GERANIUMS.—These have not been a success for bedding purposes; but for pot culture they are highly esteemed; the following are the best English ones.

Wilhelm Pfitzer.	Captaine L'Hermite.
Madame Lemoine.	Surpasse Gloire de Nancy.
Triumph.	Gloire de Nancy.
Trompette de Lorraine.	Nimrod.
Triomphe de Thumessin.	Double Tom Thumb.
	Rose Queen.

PARIS GREEN FOR THE COLORADO POTATO BUG.—Since this was announced by a correspondent in the *Gardener's Monthly* as a remedy against this pest, we find that it has become quite popular. It is, however, a deadly poison, having arsenic in its composition, and should be used with great caution.

HARTFORD PROLIFIC GRAPE.—The first in market of the season was this variety. In St. Louis they appeared on the 29th of July. J. C. Parsons, of Vineland, N. J., had them in the Philadelphia market on August second.

HAIL STORM AT BOSTON.—It is not often Philadelphia competes with Boston or Chicago in originating great enterprises. It did start a little in the hail line, and smashed many a greenhouse. Boston has grown envious, and got up another such on the 20th of June. Hail stones 5 or 6 inches in circumference were not bad. Now let us hear from Chicago.

HEDGES IN THE SOUTH.—The *Southland Weekly* says the *Osage Orange* does admirably well in Florida. In some localities the *Pyracantha* does remarkably, but does not stand watery soils well. The *Macartney Rose* also does well, but is rather rambling. These are the three chief protective hedge plants.

TO MAKE A HORTICULTURAL JOURNAL SUCCESSFUL.—Mark Twain took the position of editor *pro tem*, while the real Jove was junketing in California. He exhibited wonderful knowledge. He showed how the Horse Chestnut was rapidly becoming an article of commerce; and how oyster beds could be made an essential element in landscape gardening. During the time Mark occupied the sanctum, the circulation of the paper increased enormously. Strange to say, he was kicked out of the position in disgrace. Only that our magazine already has an "enormous" circulation, we should engage him at once.

THE SMALLEST FLOWERING PLANT KNOWN.—At the weekly meeting of the Philadelphia Academy of Natural Sciences, held on August 10th, Dr. Joseph Leidy noticed the discovery by him of a new species of leech, down in the Neck, on the line of the Second Street Railroad. This species had the remarkable peculiarity of wanting the usual saw apparatus by which blood is sucked. This little fellow has to eat worms for its living. In the same place, Dr. Leidy found the *Wolfa* growing. This is a recently discovered water plant, and is the smallest flowering one in the vegetable kingdom, being no larger than a pin-head. In the same locality he found

a remarkable polyp, nearly two feet over, which at first he supposed to be a jelly fish, which might have been introduced by some person from the seacoast.

Professor Cope called attention to a remarkable snake, the *Trionocephalus lanceolatus*, which was allied to the copperhead, and abounded in the island of Martinique. It was dangerously venomous, so much so that hundreds had lost their lives by it. Of late years it had increased so much that the population had to abandon the interior of the island. It was called by the natives *fer de lance*, or "arrowhead." Of late years a Brazilian snake has been introduced, of a perfectly harmless character, which is the mortal foe of the copperhead. It is so harmless one can fold it in his bosom. This is the *Otyrhophius plumbeus*, a species allied to the chain snake. Although but little larger than its enemy it makes a clean bolt of him. Professor Cope exhibited one which had been killed in the act of swallowing the copperhead. It had already taken in about eighteen inches of the enemy. He suggested that this plan of ridding countries of dangerous animals, by introducing enemies of a character harmless to man, was worthy of greater attention.

ESSAY ON ROSES.—A *Cincinnati* correspondent says: "I have not read a paper in the *Monthly* for some time, which gave me so much pleasure as the essay on Roses by Mr. Podbury. It has given me a new idea of Geneva. I have regarded it as a place where one might get good fruit trees, and perhaps make a good bargain in a money way. But the encouragement given by them to such papers as these, shows them to be a people advancing under the refining influences of civilization, and is much to their credit. If they continue in this way, you in Philadelphia, and those at the 'hub' must look well to their laurels."

UTAH CURRANTS.—A correspondent, writing from Niagara Falls, gives some interesting facts. The currant he speaks of was once supposed to be the same as *R. aureum*, but proves somewhat distinct. The Dogwood is the *Cornus Nuttallii*, which we believe Josiah Hoopes has succeeded in introducing.

"At Salt Lake City, in almost every garden, I saw currant bushes 6 feet high, with leaves

similar to those of the Missouri flowering, but with fruit much larger than the "Cherry Currants," some black, some yellow. Rich fruit of the black Currant flavor, but milder. In California, are flowering Raspberries with large, brilliantly white flowers. The Dogwood there produces very large and brilliantly white flowers."

INSECTS ON GRAPE VINES.—A *Dauphin Co., Pa.* correspondent, says: "Enclosed please find a leaf of Creveling Grape Vine with wart-like lumps on the under side, apparently the work of some insect. Can you tell what it is? And what remedy is there for it? Our Delaware vines in the Vineyard are completely covered with it, the leaves turning yellow and seriously jeopardizing the crop of fruit. I have recommended the stripping of the leaves so attacked and burning them."

[The larva of the *Settigonia vitis*, which is as injurious when in the mature as the present state. We should pick off the worst cases, and pinch so as to destroy, where there are only a few, so as to give one all the benefit of foliage possible to the vines.]

STRAWBERRY, BLACKBERRY AND RASPBERRY SEED.—N. L. N., *Lewisburg, Pa.* says: "I have saved about a pint of seed from the earliest ripened berries of the Doolittle Raspberry from which I wish to grow seedlings. Will you please inform me whether it will do to dry the seed and keep it like Cabbage or Tomato seed till spring, or whether it must be kept moist. A few hints from you in the next *Monthly* in reference to the growing of Strawberry and Raspberry seedlings would be welcomed by at least one subscriber."

[Sow in a box of sandy soil at once, and place in rather dark place, until the seed germinates, and then gradually inure to the light. They can be kept dry till spring and sown, but then they will remain a year in the ground before growing. As we propose, they will come up in six weeks, and if potted soon after sprouting, and their growth encouraged, they will some of them fruit next year.]

GRAPE SHOW AT MESSRS. BLISS & SONS, NEW YORK.—By an advertisement in our regular columns, it will be seen that Messrs. Bliss will hold a Grape Exhibition at their place in New York city. This will afford a good chance to see the best varieties.

BOOKS, CATALOGUES, & C.

THIRD ANNUAL REPORT OF THE OHIO STATE HORTICULTURAL SOCIETY, late Ohio Pomological Society.

So far as these pages assist us, we can see no reason for the change from Pomological to Horticultural Society. With the exception of an essay by Mr. Elliott, on landscape gardening, and a brief discussion on Potatoes, all the discussions and general business have been of a strictly Pomological character. As the report of a "Horticultural" Society, we regard it as a failure—while as strictly Pomological proceedings they are of a highly interesting character. Indeed as a record of fruit growing in the state of Ohio,

for 1869, it is indispensable to any one who wishes to be up to the times.

CATALOGUES.

The trade lists of our nursery friends are beginning to make their appearance in great numbers on our table, but descriptive lists for the general purchaser are few. Indeed we have but one on fruits, and another on flowers and trees from Graves, Selover, Willard & Co., which are got up in the beautiful style usual with this enterprising firm.

NEW AND RARE FRUITS.

ELLISDALE RASPBERRY.—Mr. S. Miller says in *Rural New Yorker*, he thinks no improvement on Old Purple Cane.

DAVISON'S THORNLESS RASPBERRY.—During a trip through New Jersey last year, we noticed this variety was everywhere afflicted with a disease which stunted its growth, and rendered it worthless. The bark on the main canes was covered with small dead spots, on which a minute fungus was growing,—whether the cause or consequence we could not tell. Most of the growers intended to abandon it. But we note that in most other parts of the country, it is highly spoken of.

GENERAL NEGLEY RASPBERRY.—Mr. Arnold at a recent meeting of the Ontario (Canada) Fruit Grower's Society, said this was a perpetual bearing black cap; the fruit as large as any of the improved varieties in cultivation.

ORANGE KING RASPBERRY.—Mr. Arnold says is a seedling raised by himself, which is perfectly hardy and of superior flavor, quite thornless, not as large a berry as Brinckle's Orange. Has grown it for seven years; has about an eighth of an acre, the fruit is too soft to ship to distant market.

NEW RASPBERRIES.—The following is the description of the new raspberries recently raised by Mr. Herstine, as made by the Committee of the Pennsylvania Horticultural Society. Of the Herstine, we shall have a colored plate next month:

"HERSTINE." Plant a good grower; most abundant and early bearer; suckers moderately; canes strong, of a pea green color, covered with white bloom; spines green, but not abundant; foliage healthy, of medium size, and often lobed, of a pearl gray color on the under side; fruit large, oblong, with small grains and crimson color; flavor, sub-acid, and very good. No. 10 we named—

"RUBY." Plant a free grower and abundant bearer; canes strong, of a light green color, shaded with purple and covered with white bloom very few spines; foliage healthy, and of a light green color, with pearl gray on the under side of the leaves; fruit large, round, of a dark crimson color, large grains, and somewhat hirsute; flavor, sub-acid and excellent. No. 16 we named—

"SAUNDERS," in honor of WM. SAUNDERS, of Experimental Gardens, Washington, D. C. Plant a good bearer, suckering freely; canes green, shaded with purple; spines numerous, small and light green; foliage light green and abundant; fruit very large, round, of a crimson

color, with large grains; flavor of high character and delicious. No. 9 we named in honor of our hostess—

"ELIZABETH." Plant a very strong grower; great bearer, and suckering moderately; canes light pea green color; spines numerous, and of a purple color; foliage of a dark green color, deeply crimped, and of a pearl gray color on the under side; fruit very large, round, crimson scarlet; grains large and strongly marked, firm, of delicious flavor, and late in ripening.

THE BANANA STRAWBERRY is a variety exhibited before the Mass. Horticultural Society, on June 23d. Size large and apparently productive, says the *Journal of Horticulture*.

HYBRID CHERRY OF UTAH.—When fruits are raised from seeds, they are apt to vary, by a

natural law of evolution. The old idea that "like will produce like" from seed is not true. But those who have been taught it, quite naturally look on any great change they see as the result of hybridization. We think this is the case with the Utah Cherry. In reply to our enquiries, Mr. J. E. Johnston has very kindly sent us all the particulars; but yet we are scarcely satisfied that his attempts were as successful as he believes. So far as we can understand, the "hybrid" is but an improvement without hybridization on *Prunus maritima*—the Beach Plum which, as well as other maritime plants, is found in the Rocky Mountain region.

Still this matter of hybridization is but one of scientific import, and does not affect the value of the fruit. The quality is not so good as that of our ordinary plum; but continual trials may make it so. Mr. Johnston deserves great credit for his endeavors in this direction.

NEW AND RARE PLANTS.

NEW PLANTS AT THE MEETING OF THE ROYAL HORTICULTURAL SOCIETY.—Several new plants of sterling merit were exhibited, and First-class Certificates were conferred upon the following, from Messrs. Veitch & Sons:

CYPRIPEDIUM DOMINIANUM.—A fine hybrid between *C. Pearcei* and *C. caudatum*. The lip or slipper is pale purple on the outside and beautifully spotted on the inside; the sepals, which are of a very pale vinous purple color, hang down like those of *C. caudatum*, and are about six inches in length. It has apparently a free-growing habit, and is altogether a very desirable kind.

PANDANUS VEITCHI.—A splendid species, variegated with longitudinal bands of the purest white; it has a fine graceful habit of growth, and is quite destitute of spines sufficiently sharp to either lacerate the leaves of plants in its neighborhood or the hands of the cultivator. Altogether it is one of the very best fine foliage plants introduced for some time past.

DIFFENBACHIA BOWMANI.—A strong growing species; leaves large, spotted with pale green, and borne on pure white leaf-stalks.

ARALIA VEITCHI.—A beautiful miniature growing species with dark bronzy leafage. There is a fine figure of this in Hibberd's *New and Beautiful-leaved Plants*.

ADIANTUM SESSIFOLIUM.—A noble growing species with large deep fronds.

NEPENTHES SEDENI.—A charming dwarf growing species with beautifully shaped medium sized pitchers, which are blotched and marked with bright chestnut red.

GLOXINIA ALICE.—A splendid variety, with huge well formed flowers of extraordinary substance; color deep maroon purple, with white throat.

LONICERA FUCHSIODES.—Near to Farnborough Station, and but a short distance from Aldershot, is Heatherside, an extensive estate belonging to Augustus Mongredien, Esq., under the management of Mr. Thomas Thornton. Here is to be seen one of the most extensive collections of rare hardy trees and shrubs in the kingdom, some of which we shall have occasion to refer to shortly; but there is just now in full bloom, against a south-east wall, a large plant

of *Lonicera sempervirens*, var. *fuchsoides*, which recommends itself as one of the loveliest of our hardy creepers. It is, of course, evergreen, with larger and handsomer foliage than the old scarlet trumpet honeysuckle has, and the flowers are larger; the color rich scarlet and orange. The plant covers, say, six feet square of wall, and is a sheet of rich color. Here is a climber that should be in every garden where there is some shelter, for it stands out boldly amongst our garden gems.—*Gardener's Weekly*.

THE CARPET CHAMOMILE.—We are expected to speak of the new turfing plant of *Pyrethrum Tchintchewi*, but if we gratify that expectation we throw away our birthright, so far as the use of our tongues is concerned. Let us call this plant the *carpet chamomile*, and we shall be understood, and ignore the botanical name as hideous, useless and injurious. The carpet chamomile is too good a plant to have a ridiculous name attached to it, and for that reason it is worthy a note in this place. A close growing dark green tuft, covered with handsome flowers, white with yellow disk, spreading rapidly in dry starving spots, and thriving equally in shade and sun, must be worthy of attention by all such as find a difficulty in making grass grow in spots where green turf of some sort is needed. If the flowers are objectionable, the mowing machine will remove them completely and quickly, but in many places about a garden, a bank of the carpet chamomile covered with flowers would be welcome enough. It would make a good turf alone, as it spreads fast and grows freely on soils that will scarcely support a blade of grass. Moreover, the hottest sun and the severest drought scarcely affect it. A most valuable acquisition is the carpet chamomile, especially if we keep it separate from its more proper and more hideous name.—**SHIRLEY HIBBERD.**

PERISTROPIE ANGUSTIFOLIA AUREA VARIEGATA.—A New Summer Bedding Plant. This very elegant Acanthad is a native of the mountains of Java, and was awarded a First Class Certificate by the Floral Committee this spring. The leaves are ovate lanceolate, bright orange in the centre, and margined with dark green; in habit it is dwarf and compact, a splendid edging plant in summer flower garden; as a pot plant it is very beautiful, and although the flowers are not remarkable for size, their bright-mauve pur-

ple color forms a striking contrast with the orange color of the leaves.—*Gardener's Chronicle*.

VIOLA CORNUTA VAR. PERFECTION.—A New Bedding Plant. It is of free growth, yet seldom exceeds 6 or 8 inches in height; the leaves are much larger than those of *V. cornuta*, whilst the flowers which are borne well above the foliage, still retain the characteristic horns of that species, but are fully three times the size, and of good substance; the color is shaded blue, the eye orange-yellow with a dark purple disc surrounding it, from which proceed radiating lines of still deeper purple; indeed it resembles a gigantic *V. cornuta* in habit, and whilst retaining its profuse blooming qualities producing flowers which almost rival our Florist Pansies for size and substance.

CHATER'S AGERATUM "IMPERIAL DWARF."—The finest bedding plant of the season. Strong robust growth, not exceeding 6 inches in height, and throws a mass of blossom all through the summer; for second rows in floral designs unsurpassed.

JENNY LIND CAMELLIA.—The *Journal of Horticulture* thus speaks of this popular American variety:

"The description you give of your plant and flower leads us to the conclusion that it is correctly named. You would, we think, be acting injudiciously to have it grafted, especially as it is so fine a plant, and we strongly advise you not to do it. The flower, as you say, is small, but very pretty. We consider it a fit companion for Lady Hume's Blush, one of the finest of all Camellias for cut blooms, but which, unlike Jenny Lind, is not a cupped flower, being more prominent in the centre. There is no work on the crossbreeding of plants."

HYDRANGEA STELLATA PROLIFERA.—It is represented as having a bolder and darker leafage than the Hydrangeas we are best accustomed to in gardens, and the flowers are produced in large globular heads of a delicate rosy pink color, every flower having a distinct star-like form.

DOMESTIC INTELLIGENCE.

THE RED ROVER POTATOES which were transplanted to this country from the banks of the Red Sea, and which are now being raised by Mr. R. F. Betterton, at Bristol, Tenn., are acknowledged to have no superiors in point of yield and flavor. They are said to yield one hundred for one by good cultivation. Mr. Betterton will have them for sale by the 1st of October. Price, \$2 per peck. Send in your orders early as only about one hundred and fifty bushels will be for sale this year.—*Mobile Register*.

JUCUNDA STRAWBERRY.—*Journal of Horticulture* says, "is growing in favor at Boston."

A FINE CHERRY ORCHARD.—A few days since we made a visit to the nursery and cherry orchard of S. S. Crocker, Esq., at Englewood, Ills., (a few miles south of this city), and we felt that what we saw and ate there well repaid us for the time spent. Mr. Crocker has about ten acres in general nursery stock and Early Richmond Cherries. His success in growing cherries is, perhaps, unequalled. For years he has not lost a crop; every successive year finds his trees full of this beautiful fruit, and, of course as the trees grow in size the quantity of fruit increases. He attributes his great success to the protection that his trees have from strong winds and heavy storms. On the outer sides of the orchard he has a fine close growth of the white willows, which are now of sufficient size to form a complete wind-break, and throughout the orchard he has a large quantity of nursery stock and other fruit trees interspersed, thus giving the cherries the protection they so much need from violent storms. Another advantage of this protection is, that the fruit does not all ripen at once, but lasts for several weeks, thus giving him an opportunity for bringing his fruit into market and obtaining good prices for it, when other orchards, within the same distance, are entirely cleared. Mr. Crocker has a large amount of young Cherry trees for sale, as well as many kinds of choice shade, ornamental and evergreen trees. He would also dispose of a portion or the whole of his orchard on favorable terms, as he desires to retire from the business.—*Prairie Farmer*.

SMALL FRUITS IN CALIFORNIA.—A correspondent of the *Ruralist*, with President Wilder's party, says: "Near Santa Clara, at Wilcox's, we noticed thirty-five acres planted in the best and newest kinds of blackberry, although it grows wild abundantly. The Raspberries most cultivated are the Red Antwerp, Fastolf and Knevet's Giant. The climate, at the time it ripens, is generally rather too dry for this fruit. Notwithstanding the second strawberry crop was a partial failure this year, owing to dry weather, and many raisers have been losers, the market, a week ago, appears to have been glutted (12th July) and at that time over two tons of berries were actually dumped into the bay, with six tons of fresh figs, for the same reason. Ripe, fresh figs, are about as delicious fruit as a man can eat, and nothing is more healthful; yet, like all other good things, we sometimes get too many of them, as in this instance. At this moment, to show how long the season of nearly all the fruits lasts, there are to be seen in the fruit stores, apples, pears, peaches, apricots, nectarines, plums, grapes, cherries (a few), strawberries, raspberries, blackberries, fresh figs, water melons and cantelopes, oranges, bananas, pine apples, and new almonds.

HOVEY'S SEEDLING AT BOSTON.—This variety has kept up a reputation around Boston; but now the *Journal of Horticulture* says: "It cannot compete with Wilson's Albany in profit, and therefore is more and more being superseded by it." Considering how long Wilson's Albany has been before the public, Boston seems to have been slow in coming to this conclusion, and must have lost much profit by this attachment to an obsolete idea.

CHOKE CHERRY STOCKS.—I tried about 500 of the choke cherry stocks for the purpose of working the cultivated sorts of cherry upon them in the years 1844 and 1845. The result was that some sorts would not adhere well; others adhered well, but in the following spring did not push, although the bud kept alive until mid-summer; others made a growth of one to two feet, but not one in fifty survived the following winter.—**F. R. ELLIOTT**, in *Western Farmer*.

LARVA OF THE COCKCHAFER.—Nurserymen and gardeners have suffered enormously by the larva of *Melolontha philophaga*, since the crows and other grub eating birds have been so nearly annihilated. Prof. Russell, in the *Journal of Horticulture*, says: "a species of fungus destroys them sometimes. The spores of the fungus enter the system with its food, and so spreads and destroys the grub." How glad we should be to have a few millions of these fungus spores on our own ground.

THE APPLE CROP OF PENNSYLVANIA.—Has been very good this year. The *Red Astrachan* especially has been somewhat wonderful. The great apple centres, Bethlehem, Catasauqua, &c., have swarmed with them. Still they have brought pretty good prices there—about \$1 60 wholesale.

ABOUT THE PEASLE TREE.—In one of the lower counties of Maryland there flourished in the palmy days of the "peculiar institution," an old darky preacher, who used no notes, and prided himself on his extemporaneous efforts. His white brethren called him "Doctor"—a title which he accepted, of course, with ludicrous gravity. At a camp-meeting which the "Doctor" was holding, one of these friends gave him, as a text, this passage in the Psalms of David: "Wake psalter and harp; I myself will rise right early." The "Doctor" adjusted his spectacles, and read:

"Wake, peasle tree and harp; I myself will arouse right airly."

The "Doctor" went on to explain that Moses was a very early riser; that he had a peasle tree which grew near his window; and that he was wont to rise mighty airly and hang out his harp on de peasle tree, *wid psalms*.—*Harper's Magazine*.

WINDOW DECORATIONS.—The cheerfulness of a home depends chiefly on happy faces and loving hearts, of course; but yet in no small degree on tasteful adornments, more or less. It is a remarkable fact, plainly apparent to those who study humanity as it is, that whenever unhappiness comes to a once pleasant home, the love of the beautiful dies away. It was a natural prompting of the soul which made those who sorrowed in the olden time, clothe themselves in sackcloth and ashes. Modern sorrow makes less display, perhaps; but yet it is quite

as natural as ever for "misery to love company"—for the miserable to take pleasure in miserable things.

The happy, who would keep happy, must keep the company of happy thoughts and pleasant suggestions. Agreeable surroundings will not keep away the bear from our doors in every case, but it helps. Even a corpse seems lightened of half its coldness, when strewn with flowers from loving hands. And flowers, bright flowers, wherever they are, are always welcome—there cannot be any idea of paradise without them.

Considering how easy it is to have flowers, why are they not more often seen? There is no place where they cannot be grown. In some countries the roof is turned into a conservatory; and in our own towns, large bay or projecting windows are often seen filled with a profusion of floral beauty. Humbler people are satisfied with their few flowers on the window-sill; while those who have not even this can have them in hanging-baskets suspended from anywhere that will afford a little light to the growing plants. To aid those who would grow plants in this way, it may be well to say that success lies chiefly in not keeping them too wet or too dry. Anything will do for a basket—corn-cobs fastened together, or curious roots, or the gnarled branches of trees. Shells, or horns, or anything that will hold earth, have been made into picturesque articles for the purpose. Even turnips, carrots and other roots have been hollowed out and made to hold pretty little plants, which in these cases seem to be parts of the roots themselves.

But whatever is employed as the basket, a hole or passage way for the water must be left at the bottom. When the plants are watered, the best way is to take them to the pump or hydrant, and dip them for a few minutes in a vessel of water and hang them temporarily outside till the water all drains away. Unless watered in this manner they are very apt to get too dry, which is as bad as too wet.

In summer time, when the house has to be shut to keep out heat and flies, and there is not enough light to keep the plants healthy, they do very well hung under trees or the partial shade of a piazza, and are just ready to bring in for winter and spring adornment.

Usually these plants do not thrive over a year in the same basket. It is best to take them all out once and reset every season. Anytime through the season will do for this.—*Forney's Wkly Press*.

NEW CHERRIES.—Mr. Luelling, of Milwaukee, has originated a most valuable Cherry, which is called the "Black Republican." It is late, sweet, hard, and crisp, and is a valuable fruit for home consumption and for transportation to distant market.—*Willamette Farmer*.

EXPRESS DAMAGES.—During the strawberry season Mr. Chubbuck of Vineland sent a crate of berries to Philadelphia, by the West Jersey Express Company. The berries were damaged while in the hands of the company, and sold for only half price. The present week the company paid Mr. Chubbuck the amount of damages demanded.

STUDY OF BOTANY.—Of the sciences that bear directly upon agriculture, botany may be reckoned among the first. The farmer is brought into closer contact with nature than any other man, except the professional student of nature. He dwells and works in the midst of the great laboratory.

A knowledge of botany, even if it does not go beyond the names and properties of the plants, the trees, the grasses and the flowers, which everywhere surround us in the country, adds an unspeakable charm to country life. Just as a traveler, who is familiar by long years of study with the antiquities, the history, the literature of ancient, medieval and modern Europe views every scene in any way connected with the history of the past with infinitely greater zest, because he is capable of a fuller appreciation than another who has no such advantage—so a farmer, or any dweller in the country, who has a knowledge of botany, has within himself greater capacities for a full appreciation of nature than one who has not this advantage.

But especially should the farmer study and make himself familiar with the common plants of the farm. This is not so formidable a task as many seem to suppose. The hardest part of it, for one who has every thing to learn, is to begin. A good beginning once made, the interest increases, intensifies, becomes almost a passion, and the subsequent acquisitions bring with them their own reward.

Our popular education is greatly defective. It depends too much on books, and makes no aim to impart a knowledge of things. It trains the intellect, and leaves the practical world of nature alone. It will not always be so. Our edu-

cation must become more practical, and aim to fit the young more perfectly for the duties of every day life. And when this change comes, as come it must, the study of botany will be elevated to the highest dignity, and assume a position which its importance deserves.—*Mass. Ploughman*.

SKINNER'S NURSERY AT MARENGO ILLS.—Mr. E. H. Skinner was located at Marengo, Ills., for 16 years. He commenced work at Rockford in the spring of 1869, and has done a wonderful amount of work. He has 70 acres of land one and a half miles west of the city. When bought it was covered with poplar, oak, hazel and underbrush generally. All this has been grubbed, and much of it now looks as if it had been in good cultivation for years. The soil is a light sandy loam, resting upon a strong clay loam, from 17 inches to two feet below the surface. No subsoiling has been needed. The surface has been thoroughly cultivated—this spring almost constantly, and the trees and plants have made a fine growth, and look well. We think, however, there has been more rain in that vicinity than in this.

Following the breaking 30 acres were set with Early Richmond Cherries two years old, and we are assured than of the 3,200 trees but one has died. They have grown well and look well.

On rented land there are 26 acres of grafts, 390,000 in all, of the leading kinds of apple, pear and plum. Of the varieties of apples set for the northern trade all have done well. Duchess of Oldenburg, Ben Davis and the Haas, or Gros. Pomier, stand at the head of the list for hardiness, standing almost as well as the crabs. Of the crabs there is a large stock, Transcendent, Hyslop, Marengo and Coral. The last two are thought the best of Mr. Andrews collection.—*Prairie Farmer*.

THE VISIT OF THE EASTERN HORTICULTURISTS TO CALIFORNIA.—Hon. Marshall P. Wilder, who, in company with Mr. Downing of Newburgh, Messrs. Ellwanger & Barry, of Rochester, and several others of the leading horticulturists of the Eastern and Middle States, have been on an exploring tour to California, returned home on Monday. The party made a thorough investigation of the horticultural and agricultural resources and capabilities of the State of California, having visited all the princi-

pal valleys and fruit-growing regions, and high as were their anticipations, they confess that they were far more than realized. From the time that they were met on the top of the Sierras by the Committee which came out to welcome them, to the moment of their departure, they were the recipients of the most generous and unbounded hospitality, public and private, and had their stay been prolonged for months, they would not have been able to have exhausted the invitations that were extended to them.

Col. Wilder states that the party found the State of California could grow nearly all the fruits which are grown on the habitable globe. The party dined one day in a grove of fig trees, and upon their table they had figs grown upon the branches which overshadowed them, and also oranges, apricots, plums, pears, strawberries, raspberries and blackberries. The fig trees are used as ornamental trees, and they saw some twenty five feet high, with stems a foot in diameter. These trees grow very rapidly. In one case they plucked ripe, luscious figs from a tree which had been planted but four years, and which was twelve feet high. This was one hundred and fifty miles north of San Francisco. Pear trees also grew very rapidly. They saw pear trees twelve years old which measured ten to eighteen inches in diameter at the butt, and were twenty-five to thirty feet high. They saw Dearborn Seedling trees on which, according to their best judgment, there were from eight to twelve bushels of ripe pears.

Their early fruits they found to be as good as ours, but their large and later pears were not so fine or so good flavored, from the reason that they leave them on the trees too long, because it will not pay to pick them. They would be glad to sell them at fifty cents a bushel.

Strawberries are ripe and in the market from April to December, and there is a constant supply of all the other delicious fruits—more than there is market for—and great quantities are almost every day thrown away for want of purchasers.

The beautiful shrubs which we here raise tenderly in our greenhouses, are raised there as ornamental tree, and shrubs for the streets. Mr. Wilder saw a Eucalyptus which was planted six years ago by Dr. Holden, formerly of this city, which was ten inches in diameter and fifty feet high. The century plant is a common garden ornament, and many of them were found thirty to forty feet high and in full bloom. They saw

a hedge of rose geraniums thirty-five feet long and nine feet high; scarlet geraniums were seen growing to the top of a two-story house, and greenhouse roses running to the third story window of another house.

Grapes half grown were measured, some of the bunches of which were fifteen to eighteen inches long. These sell when ripe for a cent a pound to the wine-makers. The larger and best bunches, such as are sent to the San Francisco market for table use, bring from 6 to 10 cents a pound. Millions of acres are devoted to grape culture.

Col. Wilder brought home with him a box of Bartlett pears, which were picked green, wrapped in paper and put on board the cars at Sacramento. They came through in admirable shape, ripened off well, colored handsomely, and were in excellent eating condition three weeks from the time they were picked, as we have had evidence to day.

All through the gentlemen comprising the party were most agreeably surprised with the wonderful horticultural resources of the State. The results of their investigation, we understand, are to be carefully prepared and printed.—*Boston Post.*

WILLOW TWIG APPLE.—Mr. James Heuston, of Dallas County, brought us some long keeping apples of four different varieties, among them the Willow Twig, all in good condition. Although this apple is not of first quality, its long keeping makes it one of the most valuable sorts, and as the tree is hardy and a good bearer, it deserves extensive planting. Mr. Heuston also brought us some Early Harvests of the present season.—*Iowa Homestead.*

MEEHAN'S NURSERY.—Our friend Meehan, of the *Gardener's Monthly*, says so little about his own affairs in his journal that probably but few of his readers are aware that he has an extensive nursery at Germantown, Pa. In a hurried visit we did not have much time to look at his general stock, as we were too much taken up with the many rare old and new things which he has stowed away in odd corners. It is very pleasant to see a dealer in plants at the same time an enthusiastic lover of them; and we regret that we had not sufficient daylight to allow

of the inspection of all the interesting specimens that Mr. M. has collected.—*American Agriculturist.*

WILLOW BREAD.—The leaves of our common or basket willow (*Salix nigra*, Marshall), treated the same as is usual for hops, makes an excellent yeast or leaven for light bread. The discovery was made in my family this summer, and after thorough trial, I was convinced that there is nothing equal to it, as it rises much quicker than hops—in half the time—imparts none of that hop flavor so disagreeable to some, and, in fact, makes better bread every way. The thing is well worthy the attention of every good housewife who reads the *Journal of Agriculture*, and lest some should hesitate in consequence of not knowing the medical properties of the willow in question, I will add that it is a healthful tonic from which no harm can possibly arise.—*Correspondent of Journal of Agriculture.*

TO EXTERMINATE CHINEAL AND ANTS FROM ORANGE TREES.—Make a thin paste of lard and powdered sulphur, apply it with a mop to the body and limbs of the tree where chineal is deposited; repeat the application in about ten days after the first application, when the chineal will be effectually destroyed, without injury to the tree.

The same application will expel ants from the tree; but as the sulphur in time becomes dry from the absorption of the lard, when the ants will return, a small band of cotton or rope tied around the body of the tree, saturated with the paste from time to time, will effectually expel them. The location of the band should be occasionally changed, as the bark of the tree may be injured by the sulphur after awhile, if the band is confined to one place too long.

The writer has recently tried the above remedy upon his trees with perfect success, and has recommended it to several of his acquaintances, who have also tried it, and have also found it to be an effectual remedy in exterminating these troublesome insects.—*N. O. Picayune.*

FOREIGN INTELLIGENCE.

UNDERGROUND FLOWERS.—A vegetable curiosity, met with in New Zealand, has been described by Mr. Taylor, says the *Scientific Review*, in whose honor it has been named *Dactylanthus Tylori*. He describes the plant as a parasite, which attaches itself to the roots (and not like others, to the branches) of trees. It has no leaves, but the stalk is covered with brown scales; the petals of the flower are slightly tinged with pink in the centre, but, in general, they are of a dirty white or brown color, and transparent; the stamens are white; the flowers have a strong smell, partly fragrant, though earthy and unpleasant. This plant forms a large excrescence on the roots of the *Tataka pittosporum*, which is covered with warts; these increase and become buds. A dozen or more flowers are often on one stem. He first met with it in the mountains near Hikurangi. Mr. Nairn found a similar parasite in the forest at the base of Mount Taranaki; this was also attached to the root of a tree, and had a number of flowers upon

it of a light blue color. Mr. Williamson afterwards gave Mr. Taylor another specimen, which he found in clearing some ground. The whole plant and flowers were entirely covered with vegetable mould; the stem between the bracts was of a rusty brown; there were twenty-five flowers open at once. Another excrescence had eighteen. He states that the odor of one plant was something like that of a ripe melon, whilst the other had also a disagreeable earthy smell.

[There are many other plants which might be described as producing underground flowers, as the *Aspidistras*, for example, which flower freely, though few who grow them have ever seen their flowers.—*Gardener's Magazine.*]

"THE UNIVERSAL NURSERYMAN" is the title of a bi-monthly publication projected by the Pomological Institute at Ringelheim, Germany, and edited by the Directors of the Institute. The prospectus states that it will contain either plain or colored plates of the best and most

showy of the new plants introduced to cultivation. At the same time illustrations will be given of designs for ornamental and picturesque planting, plans and sketches for laying out gardens of all kinds, and also hothouses and every other form of structure required in gardens.

THISTLES IN NEW ZEALAND.—A correspondent of the *Otago Daily Times*, who, during one day's journey, met with a few thistles growing here and there by the wayside, on the next day entered a district in which, for over 40 miles this acclimatized weed seemed to have fairly taken possession of the land, and the farmers in the district have reason to complain of the apathy which allowed the thistle to become such a nuisance. Spreading from a small point to the north of Hampden, where it said to have been introduced by a flock of sheep, the thistle is now to be found all over the valleys of the Shag, Otepopo and Kakanui, comprising some of the finest agricultural land in the colony; and not only in the valleys, but up to the tops of the hills, not a spur or a gully being without its hundreds. This has now reached a point at which all the Thistle Prevention Ordinances in the world will fail to prevent its spread. Slowly, but surely it will work its way to the southward and westward, until it has overrun the province.

MR. WM. PAUL'S EXHIBITION OF POT ROSES AT THE CRYSTAL PALACE.—The grand display of roses provided by Mr. W. Paul for the enjoyment and entertainment of the visitors to the Crystal Palace during the past week has certainly been one of the most sumptuous affairs of its kind on record. The exhibition was held in one of the open corridors overlooking the grounds, the sides being enclosed with canvass; and a walk through the exhibition when crowded with visitors, as it was on the afternoon of the opening day, was sufficient to convince the most skeptical of the wisdom of the step, as the enclosure was delightfully cool without exposing either visitors or flowers to cold chilling draughts. Mr. Paul is too well known as a successful rose-grower to render it necessary for us to say that the whole of the plants of which the exhibition consisted were in the most luxuriant health and superbly flowered. Suffice, then, to say that the display consisted almost entirely of specimens, many of which in former days have figured in collections that have placed his name at the head

of the prize list. The plants were arranged on a stage erected on the left-hand side of the corridor, with but one exception, and that was a fine group placed facing the entrance. The grouping of the various hues of color left little to be desired, and the plants were so arranged as to avoid, as far as possible, the flatness common to plants placed on stages erected in a straight line and of a uniform height, and the general effect was of the most satisfactory character. Between the entrance and first bank of roses was an avenue of standard orange trees, with masses of variegated and zonal pelargoniums and succulent plants. Conspicuous amongst the variegated varieties were the two white-flowered silver-edged varieties, *Avalanche* and *Waltham Bride*, both of which will, without doubt, be grand for edging purposes on account of their floriferous character. Amongst the other we noticed *Waltham Bronze* and *Plutarch*, both very promising as bedders, the coloring being remarkably rich and the growth compact and vigorous.

Passing on to the roses, it will perhaps be as well to say that the display consisted almost entirely of the old well-established kinds, the new varieties not being so fully represented as we expected they would have been, although several of the best were staged.

Amongst the older kinds, we noticed *Madame Willermoz*, a delicate sulphur-yellow, one of the best of the teas both for exhibition and the conservatory; *Bougere*, delicate blush, full and fine; *Monsieur Furtado*, sulphur-yellow, grand in bud; *La Reine*, deep rose pink, large and showy; *Paul Ricaut*, free flowering, but rather thin when fully expanded; *Madame C. Wood*, bright crimson, large, and of fine form, but quite surpassed by *Madame Victor Verdier*, of the same hue of color, a grand rose; *Elizabeth Vigneron*, a showy variety of the shell-petalled race, but inferior to others in the same way; *Coupe de Hebe*, rather thin, but fine for forcing and pot culture; *Souvenir d'un Ami*, another grand rose for pot culture, whether for exhibition or conservatory decoration; *Catharine Guillot*, rose-pink, small, but useful for cutting; *Pierre Notting*, deep rich glowing crimson, very full and fine; *Charles Lawson*, bright rose, large and full, one of the very best roses in existence for pots; *Souvenir d'Elise Vardon*, salmon centre shading to sulphur, large and fine; a good useful rose; *Michel Bonnet*, a small useful free-flowering variety; *Lælia*, pink, large and showy, but quite

surpassed by *Princess Christine*; *Alba Rosea*, a fine white companion to *Marechal Niel* for size of flower and general good qualities; *Marie Baumann*, very bright carmine rose, large, full and fine; *Reine du Portugal*, coppery yellow, fine and distinct; *Victor Verdier*, rosy carmine shading to purple; *Marechal Vaillant*, purplish crimson, grand when about half expanded; *Alpaide de Rotalier*, rose pink, very full, fine and free flowering; *Paul Perras*, large and showy; *Senateur Vaisse*, still one of the best of the bright crimson flowered varieties for general usefulness; *Madame Boll*, a rather shallow flower of no particular merit; *Madame A. Rougemont*, white, the best of its color; *Princess Christine*, rosy peach, very large, full and fine, one of the best roses sent out for many years past; *Perfection de Lyon*, rose, reverse of petals lilac, thin and poor when expanded; this was considered one of the best of last year's novelties. In addition to the above, we noticed amongst other good varieties, *Comte de Nanteuil*, *Madame Margottin*, *Comtesse de Chabillant*, *Madame Marie Radly*, *Horace Vernet*, *Juno*, *Dr. Andre*, *Madame C. Joigneaux*, *Louise Odier*, *Beauty of Waltham* and *Madame Caillat*.

A few nice specimens of the "mop-head" *acacia*, *Roflinia inermis*, the golden oak and variegated maple were tastefully intermixed with the roses, and the banks of the latter were faced with *Pyrethrum*, *Golden Feather*, *Euonymus radicans variegata*, and other dwarf growing subjects.

LEONARDO DA VINCI AS A BOTANIST. In a recent number of *Nature*, Mr. A. W. Bennett discusses the claims of the great painter Leonardo da Vinci to be ranked among the botanists. It appears that the method in which leaves are arranged on the stem (phyllotaxis) was known to and described by Da Vinci long before Sir Thomas Browne, in his *Garden of Cyrus*, called attention to it, and before Grew and Malpighi noticed it. The fact that in exogenous trees the age may be determined by the number of rings and the aspect in which the tree has grown by the greater thickness of the tree on the south side, was also first noticed by the great painter. Many other illustrations of his botanical knowledge are cited, and which have hitherto been overlooked. The student will find in Mr. Ruskin's *Modern Painters* many remarkable observa-

tions on plant conformation, which appear to be as much neglected by the botanist as those of Leonardo da Vinci.

THE NEW ROSES AT THE ROYAL HORTICULTURAL SOCIETY'S SHOW.—As the report already given has entered largely into the general character of the Show and named the successful competitors, I shall confine myself to the new Roses—viz., those of 1868 and 1869, not specifying the stands, but picking them out here and there:

Edouard Morren was again largely exhibited. My opinion of it remains as it has always been; it is a somewhat coarse flower, and inclined, like General Washington, to show a green eye. Probably not one bloom in a dozen would be fit to put into a stand of twelve, but when caught, it will grace any stand. *Reine Blanche*, as shown here and at the Palace, was a great deal too rough for exhibition, and a good white Rose is still a desideratum. *Nardy Freres* is a good Rose, as I have said before, somewhat dull in color, but we must wait for another season before deciding finally as to its position. *Madame Clert* is a very pretty bright pink flower of good shape; and *Thyra Hammerich* a very pretty blush white Rose with shell-like petals, formed somewhat in the style of *Baronne Prevost*, only a little more cupped—very pretty indeed at times. *Souvenir de Monsieur Pointeau* has come very rough this season, where I have seen it, but its color will always ensure it a welcome. *Mademoiselle Eugenie Verdier* is a very pretty Rose, and likely to be an acquisition. Of *Clemence Raoux* a box was exhibited by Messrs Lee, and if constant to that state, it was decidedly a novelty, being of a light blush ground distinctly margined with pink. *Monsieur Journeaux* is of a very peculiar shade of color—reddish scarlet with a purplish tinge through it, good form and large; this struck me a very desirable Rose. *Marquise de Mortemart* is an undoubtedly good Rose in a section where good flowers are much wanted, blush white; *Madame Creyton*, a fair Rose; *Devienne Lamy*, again shown in good condition; *Henri Ledechaux*, a fine carmine Rose, of which I have again to say that it deserves to be grown more than it has been; *Julie Touvais*, a very curious Rose with large petals, almost reminding one of a Tea, but I think one not likely to be of much use; *Emilie Hausberg*, a prettily shaped pale rose, and with imbricated petals—a flower deserving of being grown if its

habit be good, which it seemed to be; Madame Josephine Guyot, a very pretty and well shaped Rose, which I cannot find in any catalogue: Victor Trouillard, too rough; Victor Bihan, beautiful bright rosy carmine; Dupuy-Jamain, of which I have again to repeat what I said, that it is a beautiful carmine Rose well worthy of cultivation; Andre Fresnoy, not very remarkable as shown. The same may be said of Ferdinand de Lesseps and of Comtesse d'Oxford.

It will be seen from the above, that comparatively few of the new Roses of this season have been exhibited—not one of the Teas; one Noisette, Reine d'Or at the Crystal Palace; and not above five or six of the Hybrid Perpetuals. This is to be accounted for by the fact that nurserymen are busy propagating them, and hence cannot afford to allow their plants to grow on for exhibition. Of those of 1868 the following have, I think, made good their claim to remain amongst our favorites—Devienne Lamy, Dupuy-Jamain, Edouard Morren, Henri Ledechaux, Madame Creyton, Marquise de Mortemart, Monsieur Journeaux, Souvenir de Mons. Poiteau, Thyra Hammerich and Victor le Bihan.

I have bloomed some of the new Tea Roses, and am inclined to think that we have some good kinds amongst them. Chamois is rightly named, but there is too little of it. Madame Ducher has a good deal of analogy, as I have it with Devoniensis, and is a very fine Rose. Lamarque a fleurs jaunes promises to be a good yellow climbing Rose. Unique is a very remarkable looking, shaped like a Tulip, but I wait for another bloom before deciding. But to my mind the finest flower of the season, as far as I can see, and from all, too, that I heard in Paris, is Louis Van Houtte, raised by my old friend Lacharme, one of the most conscientious of our Rose raisers in France, and already dear to all lovers of the Rose by Francoise Lacharme. Louis Van Houtte is likely, I think, to uphold his fame; it is of the shape of the old Cabbage Rose and of that fine Rose Francis Treve; it has also the fine perfume of the old Cabbage; in color it is like Charles Lefebvre when it comes dark, approaching at times to that of Prince Camille de Rohan. The habit of the plant is vigorous, and altogether I am inclined to consider it the best Rose of the season. There is another Rose whose position is now so well established that it is not needful to say much of it, but I question if at the Show on June 29th there was one Rose which sooner caught the eye and held captive

the beholder than Duke of Edinburgh. Mr George Paul may well be congratulated on having sent out this fine English Rose, for in brilliancy of color it is unsurpassed, while its fine habit gives it also a claim which many dark Roses do not possess.—D., Deal, *London Journal of Horticulture*.

CABBAGE SHOW.—On Tuesday week a show of this edible look place at the Blue Boar Stockwell Gate, near Nottingham, when some exceedingly fine cabbages were exhibited for competition, some of the specimens weighing 7 lb. and 8 lb., with sound and firm hearts. The judges were Messrs. Quinton Reed, Pleasley Vale and E. Jones, Mansfield, whose awards gave entire satisfaction to the competitors. After the show the members of the club dined together. We understand the members will open their celery club on the evening of Monday the 20th inst.—*Gardener's Weekly*.

HORTICULTURAL NOTICES.

FRUIT GROWERS SOCIETY OF ONTARIO, CANADA.

A recent meeting reported in the *Rural New Yorker*, discussed the Raspberry question. The following is the vote on the best kinds:

FOR MARKET.

The Philadelphia had the highest number of votes.

Doolittle's Black Cap received only one vote less than the Philadelphia.

McCormick had three-fourths of the number cast for the Philadelphia.

Davison's Thornless had nearly half as many.

FOR HOME USE.

Brinckle's Orange had the highest number of votes.

Franconia had half the number cast for Brinckle's Orange, and so had Orange King, Mr. Arnold's seedling.

Fastolf and Yellow Antwerp had each one less than Franconia.

OREGON POMOLOGICAL AND HORTICULTURAL SOCIETY.

We learn that the efforts to establish this Society have been very successful, and another year we shall probably be reading the annual report of its doings.

ENGRAVED EXPRESSLY "FOR THE GARDENERS MONTHLY."

- SNCLAIR'S LITH PHILA

The Gardener's Monthly.

MINI-FOUR 10000

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... Again observe that the planting of spring bulbs, tulips, hyacinths, crocus, snowdrops, fritillarias, lilies, &c., and the transplanting of shrubs, and division of herbaceous



THE HERSTINE RASPBERRY.

GROWN BY D. W. HERSTINE

prevails. Two very good silver-leaved plants of this season's introduction are *Centaurea gymnocarpa*, which has leaves very much like the old of spring bulbs, tulips, hyacinths, crocus, snowdrops, fritillarias, lilies, &c., and the transplanting of shrubs, and division of herbaceous

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HINTS FOR OCTOBER.

FLOWER GARDEN AND PLEASURE GROUND.

The remarkably hot and dry season we have had all over the Union, has been singularly unpropitious for fall flowers. Dahlias came into bloom early, and in September when we should have had beauty, found nothing but dried heads and green leaves. The Gladiolus, however, has done remarkably well. This flower is becoming deservedly popular in American gardening. Seedlings have become so numerous, that first-class varieties are now within the reach of every one at moderate prices. The raising of seedlings is also a very interesting operation. Every one may have some new variety of his own in this way, superior, perhaps, to any of his neighbors. The hot weather was, however, very hard on other flowers.

Fall Roses were simply "nowhere,"—and the Chrysanthemum which makes the fall of the leaf so cheering, rather excites our pity for itself. Those who have depended much on flowering plants for the gaiety of their gardens, have failed in most but Geraniums and Petunias: while those who have rather rested for their success on masses of colored leaves, are triumphant. The Coleus, Achyranthus, Teilanthera, Vinca variegata, Centaureas, and similar things, have gone the drought gloriously; and we have no doubt this species of gardening will be immensely popular another year. We still want more variety among this class of plants. At present, one person's garden is too much a copy of another, where the style of massing with colored leaves prevails. Two very good silver-leaved plants of this season's introduction are *Centaurea gymnocarpa*, which has leaves very much like the old

"Miller's Geranium" (*Cineraria maritima*), as it does not grow so tall that, it is better adapted to some forms of masses. The other is a white leaved, woody but trailing graphalium, also called *gymnocarpum*, but we suspect wrongly named. The large variegated Periwinkle is not much in use, though not amongst the least valuable by any means. It is a good season to think of these things; as wherever this kind of gardening is to be done, six months is little enough to get the plants ready in. The Cannas have done well as bedding plants this summer. In former times they were grown for their pretty leaves chiefly; but now large and early flowered varieties have been produced, which make them showy as well as otherwise interesting.

We think ornamental vines have been too much overlooked in the summer decoration of grounds. We have seen this summer some remarkably pretty effects from the hybrid Nasturtiums, Cypress vines, Maurandia and other summer vines. There are several new "Morning-glories" of various colors, of which pretty groups could be made, but as these are mostly closed before nine o'clock, they are of no use to city ladies; but are charmingly sweet things for the country girls, who always have the best of everything in life; though not always thinking so. These vines could be arranged on fancy figures, according to colors, and certainly the effects in some parts of the ground would be as striking as that derived from leaf plants.

We gave some hints about flower roots in our last. We may again observe that the planting of spring bulbs, tulips, hyacinths, crocus, snowdrops, fritillarias, lilies, &c., and the transplanting of shrubs, and division of herbaceous

THE HERSTINE RASPBERRY.

GROWN BY D.W. HERSTINE

ENGRAVED EXPRESSLY FOR THE GARDENER'S MONTHLY.

plants, will occupy chief attention in October. All herbaceous plants are much better for being protected through winter by a covering of dry leaves, on which a little soil is thrown to keep the leaves from blowing away. Half-hardy roses and vines may be protected in the same way. When they are very long and slender, they are taken down from their trellises, and coiled into circles as small as may be, without risk of breaking them, and then the soil put on. Those things that grow late, such as many kinds of Noisette Roses, should have their mature top shoots shortened a few weeks before the protecting process is commenced. The wound will then heal over, and not cause the decay of the upper portion of the shoots, as is very often the case when they are either cut at laying down, or not shortened at all.

Of course, those roots that suffer by frost should be taken up before danger. Gladiolus, Madeira vines, Dahlias, Tuberoses, &c., for instance.

Tree seeds should be either sown or prepared for sowing in the fall. Hard shell seeds require time to soften their coats, or they will lie over a year in the ground. It used to be popular to mix with boxes of sand; but unless there be very few seeds to a very large quantity of sand, the heat given out though perhaps imperceptible to us, is sufficient to generate fungus which will destroy the seed. It is much better to soak the seeds in water, and then dry just enough to keep from moulding, and as cool as possible all winter. This is a much safer plan than sand. In States where the frosts are severe, seedlings of all kinds that have not attained a greater height than six inches, should be taken up, "laid in" in a sheltered place thickly, and covered with any thing that will keep frozen through the winter. If left out, they are liable to be drawn out and destroyed. Young seedling stock received from a distance, should be also so treated. In the more Southern States they may be set out at once, and as much planting as possible be accomplished that will save spring work. Many cuttings will not do well unless taken off at this season and laid in the ground under protection, like seedlings,—the quince, syringas or lilacs, spiræa prunifolia, and some others. In the "mild winter States," evergreen cuttings should be made now, and set out thickly in rows. The leaves need not be taken off, but short, thick-set branches laid in the under soil. When rooted next fall they may be taken up and divided into separate plants. In more Northern States, ever-

greens may not be so struck at this season, unless protected by greenhouses and frames. Where these are at hand, evergreens may be put in, in boxes or pans all through the winter.

FRUIT GARDEN.

So general has been the bountiful fruit crop this season, that many will be induced to plant this fall in the hope of having a continuous supply for their families for all time to come. The question, how shall we prepare the ground and plant? will be a very general one. We feel that the advice constantly given to subsoil and under-drain and manure to the extent of hundreds of dollars per acre is too costly to follow, and of little use after it is taken. If we were going to prepare a piece of ground for an orchard, we should manure it heavily and put in a crop of Potatoes; then in October manure again lightly and put in Rye. On this, in April, we should sow Red Clover. The Rye off, we should then consider it ready to plant trees. For Apples, Pears, Plums or Cherries, we should mark out the rows ten feet apart, and for the trees ten feet from each other. This will be twice as thick as they will be required when fully grown, but they grow much better when thick together; and they will bear more than enough fruit to pay for the room they occupy, before the time comes to cut every other one away. We say the rows ten feet apart, but every fourth row should be twelve feet to afford room to get between the blocks with a cart.

Plant as early in October as possible, but it can be continued until the approach of frost. To plant, a hole can be dug in the stubble just large enough to hold the roots without cramping them. We should tread in the soil and trim in the head very severely. The next spring we should just break the crust formed by the winter rains about the tree, and then leave everything to grow as it might. The clover will be ready to cut in June or July. The twelve feet rows may be done by machine, the rest by hand. Hay enough will be made to pay for all the labor for one year and a little more. After the hay has been hauled off, bring back some rich earth of any kind, and spread about a quarter or half an inch thick over the surface of the ground disturbed in making the hole. This will keep the grass from growing very strong just over the roots. Keep on this way annually, every two or three years giving the whole surface of the orchard a top dress-

ing for the sake of the grass, and it will be found to be the most profitable way of making the orchard ground pay for itself, until the fruit crops come in, that one can adopt. The trees also will be models of health and vigor, and when they commence to bear will do so regularly and abundantly. This is an epitome of what the *Gardener's Monthly* has taught, opposed as it has been by excellent men of the old school of culture. No one who follows it will ever abandon it for any other. It is costless comparatively, from the first to the last; and pays its way at every step.

The dwarf fruit trees we would plant on the same system, but six instead of ten feet apart. Few soils are too wet for fruit trees. Only in wet soils plant on the surface, and throw up the earth over them from between so as to make a ditch or furrow to carry away the surface water. On the plan of annual surface dressings which we have outlined, the feeding roots will thus always keep above the level of standing water; and when they can do this, it will not hurt the trees though the tap roots are immersed in water for half the year.

GREENHOUSE.

The taste for cut flowers is considerably increasing, and one of the greatest demands on a greenhouse in winter, is from the best half of the head of the household for room and table decorations. Beautiful specimen plants are not so highly valued as those which will afford plenty of bloom for cutting. The various kinds of Zonale Geraniums are very good for this purpose. The following also comprises very useful plants for this purpose: Bouvardia leiantha, Calla Ethiopica, Cestrum aurantiacum, Habrothamnus elegans, Chorozema varium, Chinese Primroses, especially the double white, Daphne indica, Poinsetta pulcherrima, Euphorbia splendens, Heliotrope, Mignonette, Sweet Alyssum, Catalonian jasmine, Yellow Jasmine, Mahernia odorata, Stevia serrata, Violets, Roses, Cinerarias and Brompton stocks. Tuberoses that flower late may be carefully taken up and potted, and will last till over Christmas; and many things may be taken out of the ground and slightly forced. The common white Lily is good for this purpose, also Dentzias, Philadelphuses, and Tamarix. The common green Euonymus japonicus, is also worth potting to make a lively green for mixing with other things.

In taking up things from the ground for pot-

ting, care should be taken to have the pots well drained, with pieces of potsherd over the hole. The more rapidly water passes through the soil the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the objects of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do more than refer to the fact.

Bulbs for flowering in pots should be placed at once. Four or five inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

VEGETABLE GARDEN.

Lettuces sown last month will now be large enough to set out for permanent growth. A common hotbed frame, set on a bed of leaves or spent stable-manure, will enable one to enjoy delicious salad all through the latter part of winter, where sufficient protection against severe frosts can be secured. In this division of our hints, it is more of an object to preserve them through the winter for the purpose of setting out in the open air in spring. In the warmer States this can be readily effected by their being set out in the open air in a sheltered place. Here in Pennsylvania they often do very well by having the ground thrown into ridges about six inches deep, running east and west, and the plants set out on the northern sides. They have a little straw thrown over them in severe weather, and get through the winter admirably, heading early in spring. The Early York Cabbage is extensively grown the same way. Where the climate is too severe to allow of this, they must be put

under cover of shutters, as before described in our Hints.

Cabbages can be preserved in such a cellar, though most prefer them in the open air. One way is to pack them closely together with their roots uppermost, and then cover them with soil, on which straw or litter is thrown to keep them from freezing. By being packed this way, the water cannot get into their hearts, which is one of the chief causes of their rotting. Where plenty of boards can be had, they may be packed with their heads uppermost, and the rain kept off by the material.

Brocoli and Endive may be taken up with balls of earth, and set in cool cellars closely together, and they will grow sufficiently—the former to produce good head, and the latter to blanch beautifully all through the winter.

Asparagus beds should be cleaned, by having the old stems cut off and the soils from the alley ways dug out and thrown over beds. It keeps the frost from the roots, and thus permits them to grow and lay up matter all winter for next spring's growth. Very early in spring the soil should be raked back into the alleys, so as to leave the roots but a few inches under the soil,

as the nearer they are then to the sun's rays the earlier will the crop be.

Celery must have continued attention to blanching as it grows, care being exercised to prevent the soil from entering the heart. Where very fine results are desired, the plants should be protected from early severe frosts, so as to enable the plants to grow without injury as long as possible.

Roots of most kinds, such as Carrots, Beets, etc., should be taken up before the frost is severe. They all keep best packed in sand in the open air, but it is too inconvenient to get at them in winter; hence cellars are employed to preserve them in. Cellars for this purpose should be cool, say with temperature of about 45°, and not all dry. It is not meant that it should be damp, as the roots will become rotten, but it must be moist enough to prevent shrivelling.

However, if any protection can be given so as to enable one to get at the pit in frosty weather, most things keep better so than in any way. Celery keeps very well packed in earth so that the frost does not get at it; but it must be laid with the tops sloping, so that the water may be kept out of the heart.

COMMUNICATIONS.

INSECTS INJURIOUS TO THE GRAPE VINE.

BY MAJOR MUHLEMAN.

Read before the Alton Horticultural Society.

The culture of the grape forms so important a branch of horticulture both East and West; and the discussions of its details, so great and important a part of the proceedings in the meetings of this Society, that it behooves us to become acquainted with all the insects injurious to it, with their natural history, mode of depredation; and disseminate a very useful information among those interested in the culture of the grape.

There is hardly a number of any periodical, agricultural, horticultural, entomological or U. S. or State agricultural reports, which contains not the description of some of the many different insects preying on the vine.

It is my object in this essay to bring before

you the whole army of them, to march them from their different quarters on to the parade ground, and march them in single file before you, to exhibit them whenever practicable in their larvæ states and as imperfect insects.

I have subdivided the column into three squads, leaving off with those that prey on the leaves, counting twenty species.

2d. Those injurious to the berry, counting three.

3d. Those attacking the roots, three strong, and bring up the rear with one species dwelling in the cane, making in all twenty-seven different species that love that royal plant.

These are the most common, and although many of them are also found on other plants, have from time to time, and in different localities, been quite destructive to the vine, so that they can and are numbered with the habitual

enemies to it. There are many more, which casually are found on the vine, among which the most numerous are the different species of tree and leaf hoppers, belonging to the families of Telligonea and Aphrophora, many of them insects of the strangest shapes imaginable. Several passing under the common of Thrips.

These and others would easily double the number given above.

Every year adds new ones to the list, consisting either of such as have already existed with us, but not described, or such as have been imported from distant countries.

All of these insects inhabit or are found on the indigenous grape vines of the country, and are more or less numerous in different sections, and as the different species of vines more or less abound which they prefer, from the wild vines they have spread on to the cultivated ones, and as certain vines have been exported from their native localities so those insects particular to them have been exported, and more or less acclimated. Yet I think that this emigration of insects injurious to the vine is confined more to a given latitude. Extreme southern ones not becoming acclimated north beyond a certain limit, whereas there seems to be no obstacle in their spreading over degrees of longitude as far as the Rocky Mountain.

Again, certain species of insects seem to prefer the indigenous to the cultivated vine, while others do not seem to be choice, and are as abundant on one as on other.

Thus on a ten year old wild vine of the Frost grape, gracing my porch, I have found exclusively the green span worm, *Cidaria diversilineata*; that of the Abbot Sphinx, *Thyreus Abbotii*, of the beautiful wood nymph, *Eudryas Grata*, also several of the Thrips or leaf suckers, while the hog caterpillar, *Chaerocampa pampinatrix*, the larva of the eight spotted forester, *Alyphia Ochomaculata*, that of pearl nymph, *Eudryas Unio*, the grape vine Fidia, the larva of the leaf roller, *Desmia Maculata* and of the plume moth, are found as numerous on the Hartford Prolific, Concord and other vines. The gall louse I find only on the Taylor's Bullit, though it has occurred with others on the Clinton and Delaware.

However, the sum and substance of all we know of the destructive habits of the majority of leaf insects mentioned above, with some few exceptions, seem to be that the vine grower need not be alarmed. The vines mostly cultivated with us possess such a superabundance of vitality,

that what few leaves are eaten off by a few solitary caterpillars or beetles are replaced in the course of a few days by dozens of new leaves, and the health or life of the tree is not endangered. But there are such others in the list which will really destroy the fruit or render it unsaleable, and such which will destroy the vine root and all. These should be chiefly studied and means devised to destroy them.

Of the former are the grape codling moth, the larva of which feeds on the contents of the berry and the seeds; the grape seed curculio, the grape curculio and the flea beetle, *Haltica chalybea*, eating out the core of the best buds, thus destroying at one swoop what bunches of grapes would have formed on that arm.

Of the latter, are the gigantic grape root borer, the larva of a beetle described and figured in Mr. Riley's Annual report for 1869, and the *Egeria Polestiformis*, a moth, the larva boring in the roots as the currant borer in the currant stem.

NEW ZEALAND.

Remarkable Trees—*Demmara Australis* or Kauri Pine.
BY MR. W. T. HARDING, FAIRMOUNT PARK.
PHILADA.

After a toilsome journey of I know not how many miles through "the bush," urged onwards by the strongest botanical enthusiasm, weary and worn, we arrived at the famous vally of Kai-a-ta.

My object was to chiefly to see the Kauri Pines, and I shall never forget the impression then made whilst viewing so strange a scene. The Kauri, (so unlike other conifers,) reared its tall shafts from 100 to 150 feet high, without a mark of ever having had any lower branches: so smooth was the bark up to 80 or 90 feet e'er a branch could be seen. Their calibre was nearly uniform—about 28 feet—irrespective of height of the matured tree. To get a correct idea of their foliage, which could only be seen on the seedlings thinly scattered around the outside of the main groups, the nearest comparison I can give is the *Laurus Camphora* or Camphor Tree, only with larger and broader leaves. To add to the strangeness of all around, was the stillness of death, a silence and isolation almost painful in the gloomy shades of antipodean forest, which was only broken by the unearthly screams of some grotesque looking bird in the tree tops, who seemed to challenge the strangers with trespassing on their weird domain. Pushing onward into the

valley, we rested for the night, darkness only preventing a further exploration. Up with "early morning" and about a bow shot from where we encamped for the night, was a sight ever to be remembered; hundreds, thousands I may say of tree ferns, *Dicksonia antarctica* and *squamosa*, stately antediluvians, palm like in appearance, were on every side, their height varying from 20 to 40 feet. Oh great and grand relics of by gone ages, who flourished "in the days when the earth was young," live on, evergreen and ever beautiful until time is no more! Beginning with the beginning and ending with the end.

SMALL FRUITS IN WISCONSIN.

BY L. L. FAIRCHILD, ROLLING PRAIRIES, WIS.

RASPBERRIES.

Early in the autumn of '69, we had severe freezing weather. It caught our trees with unripened wood. The immature Raspberry canes were frozen solid. Many of our most hardy kinds were severely injured. Canes of the native Blackcap were killed back two-thirds of their length; the same with *Cincinnati Red* and *Clarke*. *Doolittle* was considerably injured, but not so seriously. Some straggling canes of *Brinckle's Orange*, springing up among the currant rows, wintered as they usually do; in the open ground they always kill unless laid down or protected; but for several winters the canes that have sprung up in adjoining rows of currants have passed the winter safely. Plants of the *Mammoth Cluster* and *Davidson's Thornless* set in the spring of sixty-nine, were apparently unharmed, and passed the winter safely. True *Red Antwerp* does nothing here without protection; even with, gives very little fruit. *Purple Cane* does well, but I rooted them out and let *Cincinnati Red* take their place.

I have plants in rows side by side, one year set, of *Mammoth Cluster*, *Davidson's Thornless*, *Doolittle* and *Clark*. They all made a good growth. *Mammoth* is first in fruitfulness, *Doolittle* second, *Clark* third. *Davidson's Thornless* has not one berry.

If the fruit on young plants is a sample, the *Mammoth* in quality is much inferior to *Doolittle*. It has a strong woody flavor. In size they differ but little, if anything; the *Mammoth* is the largest.

Among the older kinds that we have tried, the *Doolittle* is the only kind worth cultivating for

distant market. *Cincinnati Red* is valuable where they can be delivered direct from the bushes by hand. Its drawback is its prodigious suckering.

STRAWBERRIES.

Many of the strawberries do well here. Among the more valuable that I have tried are Russell's Prolific, Green Prolific, Downer, Charles Downing, Burr's Pine; but nothing will compare with Wilson for market, it is very productive, hardy and saleable. Among those that I would reject here as worthless, are *Triomphe de Gand*, *Jucunda* or *Knox's 700*, *Shaker Seedling*, *Agriculturist*; some speak well of the latter, but my experience is very unfavorable to its productiveness. *Triomphe de Gand* grows well, but will not give a pint of fruit to a thousand plants. *Jucunda* gives no fruit worth mentioning. *Lennig's White* gives a moderate quantity of very fine fruit. *Charles Downing* bears well; fruit large and excellent. *Colfax* gives a large quantity of miserable soft, sour, medium sized fruit.

All the best kinds mentioned, have stood the winter with me fairly, without protection, except such as has been furnished by very uncertain snows. All are better for protection.

GRAPES.

None of the kinds if we except *Clinton*, are perfectly hardy here without protection. *Delaware*, *Hartford* and *Concord* will pass our mildest winters on the trellis. But there is no safety in leaving them up, as the thermometer here is liable to go twenty-five below zero, and in extreme cases, thirty-five. My location is about 43½ north latitude. Some cover with two inches of earth, others with marsh hay or straw. A slight protection answers for the above kinds.

With winter protection, we can confidently recommend many of Rogers' Hybrids, Ives' Seedling, Northern Muscadine, *Diana*, *Isabella*, *Concord*, *Hartford Prolific*, *Delaware*. *Diana* and *Isabella* will not fully ripen their fruit more than two years out of three.

My experience leads me to reject as uncertain and tender, *Adirondac*, *Iona*, *Isabella*, *Allen's Hybrid*, *Norton's Virginia*.

The culture of grapes is fast extending in this State, and notwithstanding our high northern latitude, I think it is an infant yet just in its swadling clothes. We are almost entirely exempt from rot and mildew and many of the insect depredations of the older vine growing

States. Stranger things has happened than that at some future day we may vie for precedence with the vine growing State of Ohio.

The crop looks very promising this season. We are having a serious drought, but as yet it does not affect the vine.

BEAUTIFUL TREES AND SHRUBS.

BY CHRONICLER.

Cut-leaved trees are sometimes called "fringe-leaved trees" for this reason: Their leaves are all in fragments and hang down like fringes; the young shoots upon the branches are of procumbent habits, which make the trees look very graceful, and we admire them the more on account of their peculiarities. They are of slower growth, more delicate and dwarf than the species from which they have sprung. They are accidental productions, and require nicer treatment when young; and they are increased by artificial propagation to retain their singularities. They are *pets* with arborists, who give them special culture and training, by which they become very interesting beauties, and make a very pleasing contrast with the various natural species with entire leaves and more robust and gigantic growths. They belong to various genera, of which the following are examples:

Alder, Beech, Birch, Elm, Elder, Filbert, Horse Chestnut, Linden, Mountain Ash, Hawthorn, Willow, &c., say Rosemary-leaved and ring-leaved Willows; cut-leaved, parsley-leaved and tansy-leaved Hawthorns, &c.

All trees of dwarf stature, such as those with cut leaves, variegated leaves, dark purple or brown leaves and weeping dwarfs, are suitable for planting upon small grounds, as they do not cover large spaces. A numerous species may be set without making apparent confusion, and as all are curiously interesting, the greater variety will give the greater pleasure. Compartments of large grounds are often formed into small figures by walks, upon which trees and shrubs of singular peculiarities and dwarf growths are set and arranged in a manner that all will display their charms to the best advantage, and be readily seen.

We are often smitten with amazement at the gigantic stature and grand proportions of a noble tree, and are often enchanted with the surpassing beauty of a choice shrub for themselves; yet it is the pleasing diversity of form, foliage, blossom, stature and hue which a numerous species

produces when growing in close proximity, which imparts that *unspeakable loveliness* to pleasure grounds, which excites our fondest admirations, and brings out our warmest acclamations of delight. If there are persons who can look upon a noble tree in all its symmetrical grandeur, or a shrub in all its comely elegance, without feeling a glow of animated delight, *insipid must be their lives*, and their *lamps of pleasure must burn dimly*.

FOREIGN AND NATIVE RASPBERRIES.

BY MR. ED. W. LINCOLN, WORCESTER, MASS.

I notice in the August number of your invaluable *Monthly* a report of some remarks upon the *Raspberry*, by Mr. Parry, of Cinnaminson, N. J., in which that gentleman inquires "where is Brinckle's Orange now?" In reply, I have the pleasure of stating that it is in my garden, whether to my advantage as well as to the credit of the *unequalled* variety, you can judge from an inspection of a Report which I had the honor to submit to the Worcester County Horticultural Society, of which I forward you a copy.

If Mr. Parry or any one else expects to get a good Raspberry, *without winter* protection, I greatly fear that he is doomed to disappointment for life. So far as that is concerned, we could better incur the risk of dispensing with it than more southern cultivation; since the season must indeed be exceptional when there will not be sufficient snow to act as a covering.

I should not expect to persuade men who esteem the Philadelphia worthy of cultivation; but here where we want good fruit or none, and where when we have any to sell, we ask and obtain a remunerative price. We are of opinion that all plants which are fit to be grown are also fit to be cared for properly. Experience has been my teacher, and I shall not be in haste to reject instruction of which I have tested the soundness.

[We append the very interesting extract from the Report referred to by our correspondent.—ED. G. M.]

"More interest also appears to be awakened in the growth of those other small fruits which, maturing after the strawberry, assists so essentially in completing a full supply throughout the season. With the application of white hellebore has quickly and thoroughly disappeared all apprehension of permanent injury or peril to the currant. The raspberry has suffered some harm

during the warm months, from a species of worm so minute as to be almost invisible, but yet possessing a capacity for the consumption of foliage infinitely out of proportion to its size. In regard to the raspberry, a wide difference of opinion seems to exist among cultivators, as to the comparative fruitfulness of different varieties. Thus John J. Thomas asserts that Brinckle's Orange, in central and western New York, is a shy bearer and insipid in quality when compared with such sorts as Clarke and Naomi. On the other hand, Mr. Parry, of Cinnaminson, New Jersey, is enthusiastic over a yield of the Philadelphia so prodigious that it cannot be gathered. Your Secretary, as is known to many of you, has devoted the most of his attention and space to the culture of this special fruit. And it may serve for the gratification of curiosity, should it answer no more useful purpose, to put upon record in this report, some facts which were gathered for his own guidance and instruction. He has but 2631 square feet of land applicable and employed in the production of raspberries. Of this space, 253½ feet ought to be left out of account, as the stools of Knevet's Giant, thereon planted, are quite young and immature. But from the entire plot without deduction, were gathered three quarts in excess of seven and one-half bushels—253½ feet yielded five quarts of Knevet's Giant; 405 feet, thirty quarts of the Philadelphia; 399 feet, one bushel and two quarts of Franconia; and 1573½ feet were fragrant with the rich aroma of five bushels, one peck, and six and a half quarts of Brinckle's Orange. Yet it is not to be supposed that the cultivation of the raspberry involves all income and no outlay. None of the small fruits, so called, are so impatient of neglect, or require such quantities of manure. It may indeed be asserted with safety that the capacity of absorbing fertilizers, so long and erroneously ascribed to the grape, does actually illustrate the nature and wants of the Raspberry. Moreover its canes must be protected in winter. Your Secretary does not believe in the existence of a solitary variety, *worthy of cultivation*, that will endure the frosts of our climate uncovered, and continue fertile, even if it can maintain its vitality. And this opinion is based upon his personal experience, commencing with the Red and Yellow Antwerps some forty years ago, and protracted, with intermissions, down to the present prolific season. Aware that others are of a different persuasion, he submits his convictions, for such they are,

to be taken for what they are worth. One thing more. A writer in the *Daily Spy*, not many weeks since, in article upon the culture of the Raspberry advises the making of plantations in the spring as the only suitable season. Your Secretary would assert, on the other hand, that no period of the year is so suitable as the autumn. And he does so with the more confidence that it is a theory to which his own practice has always conformed, and which results have never failed to justify."

CEMETERY TREES AND SHRUBS.

BY MR. E. MANNING, HARRISBURG, FRANKLIN CO., OHIO.

In the last number of the *Monthly*, you gave a list of Cemetery plants as sketched at Laurel Hill near Philadelphia. Although your list is a very good one, how is it a man of the good taste and ability of the Editor, has overlooked some of the most beautiful trees, such as the cut-leaved Weeping Birch, so elegant, so graceful and so chaste. It is one of the best for either cemetery or lawn; Juniperus oblonga pendula is another of our most beautiful small weeping trees; also Cupressus Lawsoniana, Libocedrus decurrens, Cephalotaxus Fortunei, Podocarpus japonica, Taxus aurea, T. Davastonii, and T. adpressa, and Juniperus sabina variegata? Of the larger evergreens, Pinus excelsa is very beautiful. A specimen here on our lawn is drooping with leaves over eight inches long, and very beautiful. All weeping trees are certainly the most appropriate for Cemeteries, as being emblematic of grief. All the Weeping Willows are very desirable for the Cemetery. [The Babylonian or common, too large we think, except in special positions.—Ed.]

Of the Magnolia family, the Purpurea is the admiration of all here, with its brilliant red flowers of large size, and very profuse; always blooms more or less in August and September; but in the spring, is one mass of bloom; has only to be seen to be ever remembered. Also M. Thompsonia is probably unsurpassed of all the yellow flowering or cream colored varieties,—so deliciously fragrant M. Soulangeana has only to be seen in flower to be admired. The M. Lenne is said to be the finest of all. I imported, from Europe, two plants, they both bloomed in the box on the voyage, which proves their early blooming. Also I would name Virgilia lutea and Japan Larch, which is the best of the Larches.

There is a new variety of Lawson Cypress,

(*Cupressus Lawsoniana aurea*,) which I imported from Europe last Spring, which is a brighter yellow than *Retinospora aurea*. I think it will be unsurpassed as a Cemetery or lawn tree. I will send you a cutting by another season. The plant is small.

[We confined our remarks to the commoner trees and shrubs. These newer ones are also valuable, as our correspondent says. We should be glad of the additional notes of others.—Ed.]

MANAGEMENT OF LAWNS.

BY R. H. N., SPRINGFIELD, MASS.

I have read in your August number, your remarks in relation to the use of mowing machines, and also your invitation to amateur horticulturists to use your columns, in any suggestions which they may believe will be useful to your readers.

Under these influences, I now propose to give, as briefly as I can, my experience in mowing my lawn. I have for many years had a small lawn which I kept in pretty good condition by the frequent use of the scythe, but was not able, entirely, to get rid of coarse grasses, weeds and white clover; my endeavor was to have a purely blue grass lawn. On the introduction of Swift's Lawn Mower, I (some ten years ago,) obtained one of them. I soon found, that in its use, my blue grass lessened, and the white clover, &c., increased, and I was satisfied that I would lose the blue grass entirely if I continued the use of the mower, as I then used it. Instead of discarding the mower, (with which I was otherwise much pleased,) I tried to find out why it was that it was destroying the blue grass, and I soon discovered that, as I run the mower to cut the grass quite short, I thinly exposed the roots of the grass to the action of the sun, and that in hot dry weather the roots of the blue grass were "burnt out," while the clover and some of the other coarse grasses were not much injured. I then changed the gauge of the machine and set it to leave the grass as long as possible, say 1½ or 2 inches, and I soon obtained the desired result in the proportional increase of the blue grass. I, last year, brought one of the small mowers which are now so generally used, and set it to cut the grass as long as I could, and I now have a fine thick sward of blue grass entirely, so thick in fact, that the machine cannot cut it if it is suffered to go without cutting, while it is growing fast, more than five or six days.

My conclusion from my experience is, of course, that mowing machines are injurious to lawns if run to cut short, (which is the common practice in this place) but that they are "just the thing" if they are set to cut long. We have just passed through a long spell of remarkably hot dry weather, and my lawn is now "fresh and green," showing scarcely anything but the rich blue grass, while most, if not all, other lawns in this place are very badly burnt.

[We regard this simple suggestion of not cutting very close when a lawn mower is used, as one of great value. It will no doubt tend to remedy the trouble caused by these invaluable machines.]

It is such notes as these, seemingly of little import, that are of great interest to so many readers, and we hope our correspondents will send us them more frequently. We value them much more than regular "articles" or long treatises.—Ed.]

YUCCA FIBER.

BY D. O. R., CENTRALIA, ILLS.

At the time the late war broke out, I was in West Tennessee, and was a subscriber to the *Gardener's Monthly*, and an occasional correspondent, but the war stopped the intercourse. I now write to you to inquire in regard to a wild plant, the name of which I am ignorant of at present; but it is something like a Yucca. I am growing some plants of it in my garden. The leaves, in a wild state, grow two and a half feet long sometimes, and less than an inch wide on the lower end, but short at the top of the stalks.

The plants I have under cultivation are more stocky, and the largest leaves short and wide. Its root is a perennial, and roots of old stocks are easily divided. The question is, will it do for paper making, or can it ultimately be manufactured into any coarse fabric for any purpose? I am satisfied it is just the thing for nurserymen for tying up plants, trees, grape vines, and for many other purposes, for I have experimented with it. Indeed the first time I came across it I used it for tying up grass to young apple trees to keep the rabbits from gnawing them, (as I had run out of string and was far from town.) To make the leaves grow long, I think it should be planted close in the rows. I will try to grow it extensively next year with the view of selling the roots and bringing the fibre into market as a native textile production. Every nurseryman

can grow his own ties, and can appropriate it to many uses, if my judgment is correct in regard to the matter. The fibre is not as strong and as fine as some now being introduced to public notice, but would be ready to use for some purposes without any preparation, after being stripped from from its stock. I have had but little of the last fall's fibre left. I tried to separate the fibre by a chemical process, but it impaired its strength; I then bleached it, and that destroyed its strength altogether. The specimens I send you were stripped of the coating by my finger nails; it was stripped off in the winter, and may not be as strong as if gathered just after frost.

[The plant appears to be *Yucca filamentosa*. The fibre is much like hemp, quite as good, and the only question is, can it be grown as cheaply?—ED.]

ON OBJECTIONS TO DARWIN'S THEORY OF FERTILIZATION THROUGH INSECT AGENCY.

BY THOMAS MEEHAN.

Read before the American Association for the Advancement of Science, at Troy, N. Y., August 19th, 1870.

It often occurs in the enunciation of new theories the authors meet with facts which seem to oppose them, and for a time present insurmountable difficulties. But it not unfrequently happens that these very objections ultimately prove to aid rather than to obstruct the progress of the newly discovered laws in popular favor.

Mr. Darwin has shown that in many plants fertilization is carried on by means of insect agency, and he has proved this to be so important a law, that he says, "if the race of Humble Bees were to die out, some species of plants would soon become extinct in Britain."

The objection to this is, that some plants appear to have their sexual organs admirably adapted to the use of these insect agencies, and yet the Bees seem to studiously avoid using them; and again, often where the structure is the best suited to throw the pollen on the insect which is to carry it away, there is the least inducement for Bees to make use of the opportunity.

There is probably no plant which has its organs more beautifully adapted to the work of this insect agency than the *Salvia*. The anthers are divided on the filaments, and while one part is extended towards the mouth of the corolla and performs its pollen bearing functions, the other extends down towards the base of the corolla tube, and assumes a petaloid form. The divi-

ded anther is thus balanced on a pivot. The lower petaloid portion so closes the mouth of the corolla tube, that any insect thrusting its proboscis down it, must lift the lever, when the polleniferous portion is brought down on the insect's back. When it attempts to enter another flower, the pistil is usually exerted, and the pollen is thus brought into exact contact with it. In addition to this there is usually an abundance of sweet liquor at the base of the corolla tube; all things tending, as one would suppose, to make the illustration of insect agency as perfect as possible. But now come the objections. In many *Salvias* the petaloid prolongation of the anthers are very poorly developed, and yet many of these abound in the honeyed juice. If the Bee enters them, the chance of his having any pollen thrown on him is comparatively small. At other times the mouth is so completely closed that the slightest touch will cause the pollen to fall, but there is little sweet to invite them. *S. Egyptica* is an excellent illustration of this. I am aware that the mere reasoner might say that this was a proper arrangement. That with less inducements for the presence of insects, the arrangements for making use of them when they do come, should be more perfect. But against all this comes the fact that the bee never enters either class of flowers at all. I have watched by the hour, and never saw an insect enter that was large enough to make the slightest use of all this beautifully contrived arrangement for cross fertilizing flowers. But the Bees get the honey; they bore a small hole near the base and suck the honey through the tube from the outside, without the slightest regard to the theories of Darwin.

I have tried to harmonize these facts with Darwin's, and failing, have sometimes thought they should weigh against his results; but his facts were so direct, so conclusive, as far as they went, that it was more reasonable to hope something would explain them, rather than that there should be a lasting contradiction. This view was the more reasonable, as it was a fact that these *Salvias* which were thus treated by the Bees seldom perfected seeds.

I think I can now harmonize these facts with the theory by an analogous case with *Petunia*. Here also the Humble Bees refuse to draw the honey up through the tube. I have seen an occasional one, evidently a greenhorn attempt it; after trying three or four, fly away from the whole bed full of flowers in disgust. The more experienced fellows make a slit in the base of the

tube, through which they get the honey. By examining *Petunia* flowers with a lens, these slits can be readily seen; or still better to watch the insect in the very act. Here was another puzzle. A large bed under my office window. An opportunity to see them every day. No insect that I could ever see assisting fertilization in any way,—and the viscid nature of all the parts very much against any self-acting power. It was a worse case than the *Salvia*, because the *Petunia* is always highly productive of seeds.

But at length the mystery was explained. Though no insect but the Humble Bee visited the flowers by day, they were thronged by *Sphinxes* at night. These were the insects through whose agency the fertilization of these flowers is carried on.

I have thought that this account of the way the *Petunia* is fertilized may not only be a novel fact to many here, but convey a very useful lesson applicable to many things—to theories of my own as well as to Mr. Darwin's. No doubt the seeming difficulties of the *Salvia* could be settled as satisfactorily as this of *Petunia*, if one could be in a position to watch for the facts. Possibly in countries where *Salvias* abound, insects peculiarly adapted to operate on the Darwinian method exist, which choose their own time and way of doing it. The *Petunia* we certainly see relies on the night Moth and not on the Humble Bee. They use their probosces to extract the honey, and thus fertilize the other flowers. Here at least, though at first in opposition, the facts wonderfully confirm Darwin, and it seems a great point gained in the harmony of apparently conflicting facts.

The reading of the paper elicited a very interesting discussion, in which Dr. Asa Gray of Cambridge, Professor Hyatt of Salem, Mr. A. H. Dall of the Smithsonian Institute, and others participated.

GRAPE DISEASE.

BY R. H. N., SPRINGFIELD, ILLS.

You will perhaps remember that some time ago I wrote you in relation to a disease of the leaves of my out-door grapes, and that my communication elicited considerable discussion in your columns. I afterwards came to the conclusion that the cause of the disease was the crowded condition of my trellisses (and the consequent dense mass of foliage which acted as a wall in preventing the circulation of air). I acted on this

opinion and cut down several cherry trees on the south side of the trellisses, thinned the vines considerably in the spring pruning, and reduced and kept down the leaves during the time of growing so that I could see through the trellisses. This season I have no appearance of the leaf disease and have a large and promising crop, some of which are ripening, while for several past years my out-door grapes were a failure. It is proper that I should say that this year has been very favorable for out-door grapes with us, and every grower almost has a good crop.

The thrip is quite numerous this season and has disfigured and injured the grape leaves (out-door) to some extent, particularly of the Delaware. I would like some practicable way of getting rid of them.

OUT-DOOR CULTURE OF CHOICE RHODODENDRONS.

BY WALTER ELDER, LANDSCAPE GARDENER.

David Landreth, the extensive grower of garden and field seeds of Philadelphia, has cultivated the Rhododendron plentifully and successfully the past eighteen years upon his pleasure grounds at his seed farm, Bloomsdale, near Bristol, Bucks county, Pa. He has several hundred plants set out both singly and in groups, in full sunshine and in partial shade of trees, and all flourish and bloom abundantly; there are several species and many varieties. "Catawbiense" is well represented among them. Many of the varieties appear by their foliage as if they had a heavy touch of the "Ponticum," yet all are hearty and thrive admirably. Many wealthy gentlemen from different parts of the country call there yearly to see the Rhododendrons when in bloom. A score of new species and varieties are added to the collection annually. The whole have been imported except a few of our indigenous species. Those in sunshine and those in partial shade are equally thrifty and profuse in their blossoms.

Those pleasure grounds are a "Museum" of arboriculture by the various modes and forms in which the trees and shrubs are grown. Some are as nature has made them, with the exception of slight pruning when young; others are dwarfed, and some are pruned into various shapes; others again are pegged flat upon the ground. It is curious to see how trees will grow when tortured into various forms and dwarfed by cutting.—There is a Beech tree thirty-five feet high, with

diameter of branches twenty-five feet; the lower eighteen feet is the common Beech, and the upper seventeen feet is the *Purple Beech*, which was grafted upon the tree at that height when young. The "Austrian Pine" which was in the form of an umbrella, is now in the shape of a Bride's-cake, five feet high, and sixteen feet in diameter. The very leafy, young shoots from four to ten inches long, are like the ornaments which decorate a great Bride's-cake.

Horticultural writers make suggestions of what may be tried by improvers, by a visit to Bloomsdale one sees what is done; there is the reality, yet we may state that the practice pursued at Bloomsdale might not prove successful upon different kinds of soil and lay of grounds; but that should not deter improvers from making experiments. The soil of Bloomsdale is a light loam, and the lay is flat, and Mr. Landreth is a master in the profession.

We would tell your readers that twenty thousand bushels of the "Early Rose Potato" was sold off Bloomsdale last spring, and now (July, 1870,) there are great quantities of Landreth's Extra Early Pea already harvested, and immense crops of other seeds.

CLIMBING PLANTS.

BY PROF. W. J. BEAL.

Almost all have heard of Darwin's great discovery of motion in the tendrils of plants, but as the Transactions of the Linnæan Society, in which the discoveries were first detailed, are not within the reach of many, the paper has not been generally read. That excellent magazine, the *American Naturalist*, of Salem, Mass., has recently had an article on the subject by Prof. Beal, from which we take the following for our readers:

"The following remarks upon this interesting subject, can scarcely be called a review, but more properly a summary, given nearly in the words of the author.* It has been made quite full, as it is likely the original paper has been read by but few readers of the *Naturalist*.

CLIMBING PLANTS may be divided into those which spirally twine round a support; those which ascend by the movement of the foot-stalks or tips of their leaves; those which ascend by true tendrils; those which are furnished with

hooks, and those which are furnished with root-lets. The last two exhibit no special movements, and are of less interest than the first three.

SPIRALLY TWINING PLANTS.—I begin with a special case, one depending upon my own observation, similar to the one taken by Mr. Darwin. A thrifty hop-vine in my yard went up nine or ten feet to the top of a stake. Still aspiring, it ran above the support, at the same time reaching off and swinging round and round following the course of the sun. When about two feet above the stake the tip of the vine circumscribed a circle two feet in diameter. While it grew longer the extent of the circle was about the same, as a part of the vine had become strong and remained nearly stationary. By observations made at different times in the day, it was found to perform one revolution in from one to two hours, moving most rapidly in the warmest part of the warmest days. It is now four feet and two inches above any artificial support, and has just tipped over to the north-east in the direction of the prevailing wind. The revolving movement lasts as long as the plant continues to grow, but each separate joint or internode, as it grows old, ceases to move. In the case of the hop and most other twining plants, about three internodes at a time twining plants, partake of the motion.

The HOYA CARNOSA (*Asclepiadaceæ*) revolves opposite to the sun in five or six hours, making a circle of over five feet in diameter. The tip traced thirty two inches per hour. It was an interesting spectacle to watch the long shoot sweeping night and day this grand circle, in search of some object round which to twine. Sometimes it described narrow ellipses. After performing thirty-seven revolutions the stem of a hop was found to be twisted three times round its own axis in the direction of the sun. To prove that the twisting of the stem does not cause the revolutions, as Hugo von Mohl supposed, some stems are not regularly twisted, and others twist in an opposite direction to the revolving plant. In many of the twining plants the end of the shoot is hooked, so as the more readily to hold fast to any object of support which may be caught. This support once found, the point of contact ceases to move, but the tip continues to twine above and around the support as a rope swung around a stick will coil in the direction of the swinging rope.

If a stick shortly after having been wound

round be withdrawn, the shoot retains for a time its spiral form, then straightens itself and again begins to revolve. Mohl believed that plants twined because of a dull irritability of the stem, but experiments prove that this is not generally the case.

If the support of a twiner be not lofty it falls to the ground, and resting there the extremity rises again. Sometimes several flexible shoots twine together into a cable and thus support each other. Single thin shoots will fall and turn abruptly back and wind upwards on themselves. The majority of twiners move in a course opposed to that of the sun or the hands of a watch. Rarely plants of the same order twine in opposite directions, but no instance is known of two species of the same genus twining in opposite directions. Of seventeen plants of *Loasa aurantiaca*, eight revolved in opposition to the sun, and ascended from left to right; five followed the sun and ascended from right to left; and four revolved and twined first in one direction, and then reversed their course. One of these four plants made seven spiral turns from right to left, and five turns from left to right. Climbers of the temperate zone will not generally twine around thick trees, while those of the tropics could hardly ever reach the light. In our temperate countries twiners which die down every year would gain nothing, as they could not reach the summit in a single season. With most twining plants all the branches, however many there may be, go on revolving together; but, according to Mohl, the main stem of *Tamus Elephantipes* does not twine—only the branches. On the other hand, with the asparagus, given in the table, the leading shoot alone, and not the branches, revolved and twined. Some produce shoots of two sorts, one of which twines; the others not. In others the uppermost shoots alone twine. One twines during the middle of the summer, but not in autumn. Some grow erect in dry, South Africa, their native country; but near Dublin, Ireland, they regularly twine.

LEAF CLIMBERS.—The stems of several species of *Clematis* are twiners like the hop. But in addition to this mode of holding fast, the petioles are sensitive to the touch, slowly bend into the form of hooks, and if successful in catching a stick they clasp it firmly and soon become greatly enlarged and strengthened by an extra growth of woody fibre. If they come in contact

with no object they retain this position for a considerable time, and then bending upwards they reassume their original upturned position, which is retained ever afterwards. In *Clematis calycina* the clasped petiole becomes nearly twice as thick as the leaf-stock which has clasped nothing. The petiole of the unclasped leaf is flexible, and can be easily snapped, whereas the clasped footstalk acquires an extraordinary toughness and rigidity so that considerable force is required to pull it into pieces. The meaning of these changes is plain, namely, that the petioles may firmly and durably support the stem. In some species of *Clematis* furnished with compound leaves the main petiole alone is sensitive, while some have two or three sub-petioles, also sensitive; still others have the entire number, as many as seven, sensitive. Some petioles are extremely sensitive to very light weights, as one-eighth of a grain. They will clasp thin withered blades of grass, the soft young leaves of a maple, or the lateral flower peduncles of the quaking grass, *Briza*; the latter are only about as thick as a hair from a man's beard, but they were completely surrounded and clasped.

The first petiole of *Tropæolum tricolorum* var. *grandiflorum* bear no laminae or blades, and are very sensitive to touch, sometimes bending into a complete ring in six minutes. The next filaments above have their tips slightly enlarged, and those still farther up the stem still more enlarged; so we find all grades, from tendrils to leaves with large blades. All of these petioles are sensitive; those without blades acting in every way like genuine tendrils; the latter are short lived, however, dropping off as soon as the petioles of the true leaves have clasped the support above. The most remarkable fact, and which I have observed in no other species of the genus, is that the filaments and petioles of the young leaves, if they catch no object, after standing in their original position for some days, spontaneously and slowly move, oscillating a little from side to side towards the stem of the plant. Hence all the petioles and filaments, though arising on different sides of the axis, ultimately bend towards and clasp either their own stem or the supporting stick. The petioles and filaments often become, after a time, in some degree contracted, presenting features much like true tendrils.

Murandia Semperflorens (*Scrophulariaceæ*) has flower peduncles which are sensitive like tendrils, and exhibit revolving powers. These

*On the Movements and Habits of Climbing Plants. By Charles Darwin, Esq., F.R.S., F.L.S. [From the Journal of the Linnæan Society.] pp. 118. London, 1865

spontaneous movements seem to be of no service to the plant, as they lose the power when the flower is old enough to open. The leaf-stalks and internodes of this plant do not twine.

Lophospermum scandens var. *purpureum* when young has sensitive internodes. When a petiole clasps a stick it draws the base of the internode against it; and then the internode itself bends towards the stick, which is thus caught between the stem and the petiole as by a pair of pincers. The internode straightens itself again, excepting the part in contact with the stick.

With *Solanum jasminoides* as in no other leaf-climber examined, a leaf grown to its full size was capable of clasping a stick; but the movement was extremely slow, requiring several weeks. On comparing a thin transverse slice of this petiole with one from the next or older leaf beneath, which had not clasped anything, its diameter was found to be fully doubled, and its structure greatly changed. In the section of the petiole which had during several weeks clasped a stick, the two upper ridges have become much less prominent, and the two groups of woody vessels beneath them much increased in diameter. The semilunar band is converted into a complete ring of very hard, white, woody tissue, with lines radiating from the centre. The three group of vessels, which, though closely approximate, were before distinct, are now completely blended together. This clasped petiole had actually become thicker than the stem close beneath; due chiefly to the greater thickness of the ring of wood.

Plants belonging to eight families are known to have clasping petioles, and plants belonging to four families climb by the tips of their leaves. With rare exceptions the petioles are sensitive only whilst young; they are sensitive on all sides, but in different degrees in different plants.

TENDRIL-BEARING PLANTS.—By tendrils are meant filamentary organs, sensitive to contact and used exclusively for climbing. They are formed by the modification of leaves with their petioles, of flower peduncles, perhaps also of branches and stipules. The species of tendril bearers described, belong to ten natural families. Species of *Bignonia* and some others taken together, afford connecting links between twiners, leaf-climbers, tendril-bearers, and root-climbers. Some little time after the stem of *Bignonia Tweediana* has twined round an upright stick, and is securely fastened to it by the

clasping petioles and tendrils, it emits at the base of its leaves aerial roots which curve partly round and adhere to the stick; so that this one species of *Bignonia* combines four different methods of climbing, generally characteristic of distinct plants, namely: twining, leaf climbing, tendril-climbing, and root-climbing.

The movements of *Bignonia venusta* are quite complicated. Not only the tendrils but the petioles bearing them revolve; these petioles, however, are not in the least sensitive. Thus the young internodes, the petioles, and the tendrils, all at the same time, go on revolving together, but at different rates. Moreover, the movements of the opposite petioles and tendrils are quite independent of each other. One other curious point remains to be mentioned. In a few days after the toes have closely clasped a stick, their blunt extremities become, though not invariably, developed into irregular disk-like balls, which have the singular power of adhering firmly to the wood.

The simple undivided tendril of *Bignonia speciosa* ends in an almost straight, sharp, uncolored point. The whole terminal part exhibits an odd habit, which in an animal would be called an instinct; for it continually searches for any little dark hole in which to insert itself. The tendrils slowly travel over the surface of the wood, and when the apex came to a hole or a fissure, it inserted itself, often bending at right angles to the basal part. The same tendril would frequently withdraw from one hole and insert its point into a second one. Mr. Darwin says: "Improbable as this view may be, I am led to suspect that this habit in the tendril of inserting its tip into dark holes and crevices, has been inherited by the plant after having lost the power of forming adhesive disks."

A plant of *Bignonia capreolata* was several times shifted in position in a box, where one side only was exposed to the light; in two days all six tendrils pointed with unerring truth to the darkest corner of the box, though to do this each had to bend in a different manner. Six tattered flags could not have pointed more truly from the wind than did these branched tendrils from the stream of light which entered the box. When a tendril does not succeed in clasping a support it bends downwards and then towards its own stem, which it seizes, together with the supporting stick, if there be one. If the tendril seizes nothing, it does not contract, spirally,

but soon withers away and drops off. A bunch of wool was placed in the way of the tendril; they caught one or two fibres, and then the tips began to swell into irregular balls above the one twentieth of an inch in diameter. The surfaces of these balls secrete some viscid resinous matter, to which the fibres of the wool adhere, so that after a time fifty or sixty fibres are all deeply imbedded in one ball of tendrils. These tendrils quite fail to attach themselves to a brick wall. These plants are especially adapted to climb trees clothed with lichens and mosses which abound on the trees in the native country of the *Bignonia*.

Cobocæa scandens (*Polemoniaceæ*) is an admirable climber. The terminal portion of the petiole which forms the tendril is sometimes eleven inches long. The tendril performs one revolution against the sun in an hour and a quarter. The base of the petiole and the internodes do not move at all.

A large majority of the tendrils of *Corydalis claviculata* still bear leaflets, though excessively reduced in size. We here behold a plant in an actual state of transition from a leaf-climber to a tendril-bearer. Whilst the plant is young, only the outer leaves, but when full grown all the leaves, have their extremities more or less perfectly converted into tendrils.

Echinosystis lobata. A thin, smooth, cylindrical stick was placed so far from a tendril that its extremity could only curl half or three-quarters round the stick. It was always found in the course of a few hours afterwards that the tip had managed to curl twice or even thrice quite

round the stick. Measurements showed that this was not due to the growth of the tendril. Whilst the tendril was slowly and quite insensibly crawling onwards, it was observed that the whole surface was not in close contact with the stick. The onward movement is supposed to be slightly vermicular, or that the tip alternately straightens itself a little and then again curves inwards, thus dragging itself onwards by an insensibly slow, alternate movement, which may be compared to that of a strong man suspended by the ends of his fingers to a horizontal pole, who works his fingers onwards until he can grasp the pole with the palm of his hand. Experiments upon this interesting plant were made, and the results published by Dr. Asa Gray, in 1858. This led Mr. Darwin to more extended observations upon many other climbing plants. He is only one of a large number of persons who are indebted for valuable hints from the sagacious botanist of Cambridge, Mass.

Hanburya Mexicana. In a few days after the tips of the tendrils have grasped an object, the inferior surface swells and becomes developed into a cellular layer, which adapts itself closely to the wood, and firmly adheres to it. This is not the extreme tip of the tendril but a trifle back of it. This layer apparently secretes some resinous cement, as it is not loosened by water or alcohol, but is freed by the action of ether and turpentine.

Tendrils of plants belonging to *Vitaceæ*, *Sapindaceæ*, *Passifloraceæ*, and perhaps others, are modified flower peduncles, but their homological nature makes no difference in their action.

(To be continued.)

EDITORIAL.

TRAVELLING RECOLLECTIONS.

MR. SUCH'S SOUTH AMBOY, N. J.

It was a lucky star which guided us, one fine day in August, to the place where Mr. George Such has his hospitable home. The ride through New Jersey from Philadelphia is one to suggest Botany, Ornithology, Herpetology—anything indeed but Horticulture. Once in awhile our eyes would light on a spot wherein might possibly be found a reader of the *Gardener's Monthly*,—here and there some evidence existed of a race cultivated and refined,—but on the whole it would

puzzle the ethnologist to decide whether it was the remains of ages passed away or the origin of a new race supplanting a more ancient civilization. In this puzzled spirit we found ourselves in the village of South Amboy—a little place of perhaps fifteen hundred inhabitants, the chief business of whom seemed either directly or indirectly to be "running" the Camden and Amboy Railroad, which here leaves terra firma, and indulges in an hour's boat ride to New York. On the west of the town is a considerable eminence for this part of New Jersey, and on its summit

two very handsome houses, with grounds laid out in tasteful and somewhat expensive style. A very beautiful vinery was on the grounds, and here at least we thought to have found horticulture in the wilderness. But it was not to be so. Mr. Conover, a wealthy and refined gentleman, commenced it, but it was sold out to the Camden and Amboy Railroad. One mansion is now rented out to Mr. Thompson, a very successful market gardener; the other is the "Stevensdale Institute," a private classical school, becoming popular under the management of Mr. Withington, a well-known and popular Philadelphia teacher of other days. The grounds are still kept neat and clean, but the beautiful bridges, arbors and fountains, seemed uneasy. Everything about them was growing in beauty; they were left alone.

Half an hour's ride over a trail through a dense forest of Oak, Maple and Pine, with innumerable shrubs and flowers as underbrush, and the grey *Usnea* hanging from trunk and branch like the well-known tree moss of the south which simulates it, we found ourselves again in an open spot, on a gentle rise, commanding one of the most beautiful views of its class to be found around here for many miles. On the northwest are the broad waters of the Raritan, which seem from here rather like a lake, taking its rise from the foot of a valley at the base of our eminence, which valley makes a part of a circle extending far toward the east. The rising hills beyond the valley are all densely wooded from the east all the way round the curve to the west, and as the sun shone on different parts of the curve, exhibiting different features at every moment of its course, we felt that we could sacrifice any beauty in the far famed Central Park for a natural scene like this. Here on this spot, in the centre of this glorious landscape, Mr. George Such has his house and garden.

This part of New Jersey is famous for deposits of clay out of which the best kinds of pottery are made, and which enter largely into the manufacture of wall paper. Most of this lies at a depth of twenty or thirty feet beneath the surface, all of which from its sandy nature, has to be hauled away before the argillaceous treasures can be reached. An easy worked bed is a treasure. Mr. S., is the fortunate owner of one of these "banks." The depositor found a watery grave many thousands of years ago, and Mr. Such makes free and profitable use of the assets without fear of any one returning at an unex-

pected time to claim its own. The successful management of this monetary institution has made Mr. S. quite independent in this world's goods; the Horticulture of the place is therefore the child of love. Even the parts of the grounds devoted to commercial purposes betray the spirit to which they owe their origin. The plant houses are models of neatness and good taste, and the plants under the direction of Mr. James Taplin, formerly the successor to Sir Joseph Paxton, as Gardener to the Duke of Devonshire at Chatsworth, are just such specimens of health and cleanliness which we should expect from such an intelligent cultivator. The orchideæ house is particularly a sight to see. Those who have slender purses should not go there. They will be tempted to have something like it themselves to their utter ruin. Twenty-five dollars is considered no price for good specimens of not uncommon species in this order of plants, but Mr. Such gets most of the valuable new ones as they appear in Europe. But even the old world is not fast enough for him. He endeavors to collect direct from their native countries for himself. In a corner was a small lot of recent arrivals from tropical America, which cost over \$250 in gold. One of the finest specimens of the magnificent *Dendrobium nobile* we ever saw was here, with many dozens of branches. We emphasize the *one* because we are not sure but Mr. Alexander Newett, Gardener to H. P. McKean, of Germantown, might successfully compete with it. We should, by-the-way, like to see these two kings in orchideæ culture in deadly combat for supremacy in this floral field. Besides orchids, these houses of Mr. Such's contain rare ferns, and leaf plants; besides most that is rare and choice in the floral way. Here for the first time we saw in flower that beautiful plant of the Arum family, the *Anthurium Schurzianum*. To get an idea of this flower the common white Calla lily will serve as an illustration. The white spathe of the lily is, however, in this a rich crimson, only not half as large, and the plant is of a dwarfed and more stocky growth. There were about half a dozen flowers open at one time when we saw it.

But our space will not permit us to dwell long on the beauties of the plant houses; for the open grounds present objects quite as attractive. Of these the *Camas* are perhaps the most striking. It is wonderful what improvements have been made in them the few past years. Once they were valued chiefly for their banana-like leaves,

which gave so tropical a look to our flower gardens; but kinds with a free and gay flowering habit, with fine leaves also, are now common. One blooming here profusely, *C. Rendalleri*, introduced first through Mr. Such, is now well known. Several more of this character were in bloom here; one of them *Pius IX.* pleased us highly. One with bronzed leaves *C. metallica* was a great favorite with Mr. Such. For decorative gardening much use is made here of the old *Humea elegans*, though we seldom see it. We don't know, though not of that class of plants, why it should not be as popular as the Pampas grass. The common *Ricinus* or Castor Oil plant, *Bocconia japonica*, and variegated *Calamus*, with the well known and little known kinds of *Coleus* and *Teilanthera*, make up a good list of what are grown here.

For commercial purposes, thousands of Lilies, Tuberose, and Gladiolus are grown, for which the soil and culture seem admirably adapted. The soil is naturally good, but it is deepened and highly manured with a compost which is found by experience to be the best adapted to their superior growth. The success of this culture may be understood when we say that in some instances the small offsets from the last year's tuberose were flowering. With the success which is following some of our American growers in these bulbs, America is fast becoming independent of European growers of them. Mr. Such showed us some Tulips and Hyacinths, which were equal to the best raised in Holland. He will try the experiment next year as to whether they cannot be raised as profitably as well as as good, and is confident of success. The Lily beds are grand sights to see here. In some places the great golden Lily, *L. Auratum*, has not shown itself at home in our climate. Here it succeeds well, and shows no disposition to degenerate. The hundreds of beautiful blooms, some of them over a foot in diameter, and with half a dozen flowers on a panicle was a rich sight to see. There was here also a lighter variety of the same thing grown which will probably be as highly valued as the original kind. The old Japan Lilies were also grown in immense quantities, and really hold their own for beauty in spite of the novel attractions of their golden rivals. In the shape of climbing vines there was nothing more beautiful than an *Akebia quinata*, which had made for itself a column of neat verdure from the ground to the top of Mr. Taplin's residence.

In the fruit garden grapes were an "enormous success," but this is no credit to any one or any system this year, as this is the report everywhere. We recollect many other matters of interest, especially some about Ivies, but must close.

THE HERSTINE, AND RASPBERRIES IN GENERAL.

(See frontispiece.)

Of all the fruits in cultivation, the history of the raspberry is probably less known than that of any other fruit. Only one Roman writer notices it, and he simply speaks of it as a berry called *Idæa*, from its growing on a Grecian mountain of that name.

The earliest English authors call it the "Raspis." Why it was so called has never seemed clear to us. Many explanations have been offered by ingenious men, but we have so often found in these cases that the more plausible the theory the less likely it is to be true, that we suppose it is so here, and frankly confess that we do not know the origin of its name.

In Botany, however, Linnæus retained the classical name for the species, and thus we have *Rubus Idæus*—the raspberry of Europe.

Whether or not it was local to Mount Ida, and from there traveled all over Europe and Asia, does not appear. But within the time of modern Botany it is found in spots all over these countries, though not extra abundant anywhere. We have ourselves gathered the fruit from plants in some of these European wild localities, and we must confess that we have not found so very much improvement in a thousand years of garden culture as we are apt to credit ourselves with. We have berries a trifle larger, a little sweeter and somewhat more abundant in its bearing habits; but that is all. As to hybridization, we have no idea that it has had any influence whatever in the improvement. We have found variations as great in these wild forms of *Rubus Idæus* as any we have in our gardens; yet there is in Europe but the one species, and of course there is nothing like it with which it is likely to hybridize.

Statements have been made by parties that they have hybrids between the Blackberry and the Raspberry, but this is mere imagination, and not the result of experiment, and believed simply because there is an appearance of a combination of the characters of both. We know that plants will change without hybridization; we do not know that they have ever hybridized. It is

safer therefore to believe in a law of change, of which we have had some experience, than of one which we have none.

Our own country has a wild Raspberry very close to the *Rubus Idæus* of Europe, namely, the *R. strigosus*. It is found all through Canada and the Northern States, but its chief home is along the line of the Great Lakes, from the Rocky Mountains to the Sea. This is so little different from the *Rubus Idæus* of Europe, that it is reasonable to suppose they might have come from the same stock. The chief difference as recognized by Botanists is that the petals are shorter than the calyx in the American, and equal to the calyx in the European. The other characters are so variable that they are not much to be depended on. The wild fruit of the American is rather superior to the wild fruit of Europe.

Then we have two other species of Raspberry in cultivation of American origin: *R. occidentalis* of Linnæus, and the *R. neglectus* of Peck. The former is well known as the "black cap" class, and characterized by smallish pips, and a great number of them in the berry; "berry seedy," as the buyers say; the other is the purple fruits, of which the Catawissa, Ellisdale and perhaps the Philadelphia are types. We know that many of our best and leading Botanists regard this class of purple fruits as *hybrids* between the Black Cap and the Red Raspberry, but, as we have said, this is only an assumption, for which there is no direct evidence, while the natural law of change is against it.

Returning to the subject of the Red Raspberries and their improvement, we see how closely allied are the representatives of the two continents. Much has been made of the hardiness of one over the other, as a stock to raise seedlings from, but we are satisfied there is no difference in the constitutional character of either in this respect. Of the very same brood some will be hardier and some tenderer than others. Thus the "Allen" has been claimed by some as a seedling of *R. strigosus*. There is no evidence that this is so. It may or may not be, we cannot tell. It is certainly one of the hardiest of its class, and one of the best to raise an improved breed from.

We give in this number as a frontispiece, the "Herstine," a seedling which we regard as valuable chiefly on account of its derivation from the "Allen." It has proved very hardy so far, and this joined to the fact that the plant which bore the seed grew near some "Philadelphias," has

led some of our friends to suppose it a hybrid. From what we have already said, it will be understood that we dissent from this view. We value it entirely because of the hardy character of its female parent, and for its own hardiness and the excellent quality of its fruit and bearing habits, in which it equals at least any that have gone before.

We will now say a word about the preservation of a hardy character in the class of Red Raspberries. They are essentially of a mountainous or lacustrine disposition, hence a cool soil is of the first importance to them. If the soil is hot or dry they will assuredly have their vitality gradually weakened, till they become the prey of numerous fungus parasites, and are often destroyed by the first white frosts. If the cool soil be given them, they will keep their leaves green and healthy till the regular fall season arrives, when they will be found as "hardy as an oak," and will withstand an average winter without protection. It is only when vitality fails, and the leaves are too weak to remain on during their full allotted time, that protection in winter becomes necessary.

As to propagation, everybody knows how to raise Raspberries. Every piece of root cut up makes a plant. No hot bed is essential, although of course with this care more are surer to grow. Set out in the open ground in Spring four-fifths of the roots will make good plants.

HORTICULTURAL EXHIBITIONS.

The September Exhibition of the Pennsylvania Horticultural Society was so great a success that we are tempted to look at its future influence on gardening not only in the great city of Philadelphia, but as it radiates from this over all the Union. Last year some fifteen thousand persons visited the exhibition, but it was said that it was the California fruits—the Kansas apples—the lions of the Pomological Society—anything but legitimate horticulture, which drew so great a crowd. But to-day we have nothing extraneous, no extra "card." Nothing much but legitimate horticultural objects of home growth; but yet the crowds were as dense, and the interest in everything was of the highest class.

Much of this success is due to the wisdom with which the gentlemen in charge have managed the Society. They have had to contend with excellent ideas which, as the world goes, ought to be successful, but which are unfortunately not.

For instance, people tell us that a Horticultural Society is for the promotion of horticultural taste, and that only; and only the most tasteful objects, and these all of a horticultural excellence exclusively should be tolerated.

But here things are not all of this class; there were some plants which were "mere bean poles," and which perhaps would "not be tolerated at a London exhibition." There were large designs of cut flowers; which to the "highly cultivated taste" were no doubt "positively hideous." Fountains which, to those who have "seen the Emperor," were mere "squirts," and cascades which certainly did not "equal Niagara." Then there was the "tootings of brass horns," which "might be in place at a political talk," and even "Greenland's Icy Mountains" was sung by a set of musicians, which was "turning horticulture into a camp meeting." Moreover, there was some "gorging and guzzling" by some who had worked hard for the Society without recompense;

and worse than all there were premiums offered to "gardeners," who ought to have so much pride in their profession as to be glad to work hard "for the mere honor of the thing."

We are not prepared to say that all these objections are not good. We know of no reason against them. All we can say is that in other towns and cities where this class of ideas prevail, they have no Horticultural Exhibitions or Horticultural Societies, nor will they ever have them.

The facts as we find them are what we have to do with. It is evident here that the Pennsylvania Horticultural Society is an extremely popular institution with the people of the State; that it is fostering a love of trees and plants, and fruits and flowers amongst the people in a way that no other one ever has done, even in Europe, to which we are referred so much; and that amidst all the extraneous trifles to which good people aforesaid object to, it is fulfilling its main mission wisely and well.

SCRAPS AND QUERIES.

CERCIS CANADENSIS.—V. G. P. says: "Your article in August on this subject, from *Colman's Rural World*, was an inquiry addressed by me to it, and published in *The Country Gentleman* of June 9th, current year. As none of the correspondents of the paper in which it first appeared have answered, and as I do not take *Colman's Rural*, I respectfully ask whether you have any knowledge on the subject? It was on the *Wissahickon*—you see I use the two k's, though I believe one of them is generally dropped now—that I remember the Redbud and the dead humble bees, wasps, &c., under it."

[We have no personal knowledge that the flowers of the Judas tree are injurious to bees; but we know many closely allied plants are—the *Wisteria*, for instance—and it was because we thought it very likely to be the case, that we thought the hint we found in the *Rural World* worth minding.]

CAUSE OF SUCKERING IN TREES.—Every one has noticed that trees are more liable to sucker at some times than at others. Why, is not known. Mr. C. J. Robinson, in *Nature*, says

the Elm and Apple trees near London have suckered remarkably this year, and he attributes it to the intense heat there of this season. Of course this could only be an indirect cause. The real reason is a check to the ascent of the sap through the trunks, which then forces a growth through the main roots. In what way extreme heat can operate on this direct law, we do not see; although it may do so.

BRICE PEAR.—Under this name a pear is extensively grown in Germantown, and has been for the last one hundred years. It is the old "Bergamotte d'Automne" of the French, and is for this section one of the best September pears known.

WHAT IS THE USE?—A friend says: "I don't see the use of many discussions which occupy public time, about the nature of Pine leaves, for instance, whether they are true leaves or transformed branchlets? If they perform all the functions of leaves, what else do we want?"

[Perhaps so. If a Bologna sausage perform for us all the functions of a "nutritious article,"

what is the use of any care or thought as to whether it is made of hog or dog meat? Yet most of us would rather know, in spite of this good reason against it.]

RED MAPLE TREES.—*Observer*, referring to Mr. H. C. Beardslee's note, on page 235, suggests that trees often get their vitality checked in some way, before they produce seeds. Undue fertility, he therefore thinks, is a consequence of some prior injury. He would manure trees likely to flower too freely; and if possible cut off the blossoms before opening. This advice applies to any species of trees, as well as to the Red Maple.

CALADIUMS IN THE OPEN GROUND.—We saw a beautiful bed of these last month on the grounds of R. F. Warner, of Germantown, showing how well they are adapted to open air culture for summer decoration. They were watered occasionally during the dry weather, and grown in partial shade afforded by some trees at a distance.

CHASTE TREE.—In our notice of this recently, we stated that there were in cultivation two varieties. Amongst the very fine collection of trees at the nurseries of Graves, Selover, Willard & Co., of which we shall have more to say at another time, we saw a variety nearly white. This shows how many good varieties of this pretty, fall-blooming shrub could be had for the trying.

DEFECTIVE FLOWERS.—CLEMATIS FLAMMULA.—*Observer* says he has a quantity of seedling plants of Sweet Clematis, one of which never perfects its seeds. He believes the female organs to be abortive; in other words, that it is a male plant. The growth is more slender and the leaves smaller, and he thinks sustains the views of the editor of this journal, in his paper read before the American Association at Troy, and published at page 267 of this volume.

BLACK HAMBURGS FROM THE OPEN AIR.—With a beautiful bunch of grapes, Mr. Blodget sends us the following note:—I take occasion to send a bunch of my open air Black Hamburgs, which are very pleasant and sprightly; much more pleasant to me than the ordinary covered grapery fruit. With such seasons as this has been we should make rapid progress in grape cultivation. Our climate is fully vindicated. The fault, if any, is in our want of persistence

and faith in cultivation. I trust we shall at some time have especial effort given to the cultivation of Native Grapes. My vines of every sort do extremely well again; particularly Roger's Hybrids, Concord, Diana, Christine, Delaware, &c.

SPIRÆA JAPONICA.—*B. S.*, Detroit, Mich.—The plant you refer to is probably the Spiræa or Hoteia japonica—a hardy plant usually in bloom in July, but forces well, and is used in immense quantities by Eastern florists for winter bouquets.

FROSTS IN ENGLAND.—The white frosts, damaging some of the tenderest flowers, commenced in England the last week in August.

STRAWBERRY.—The *Vicomtesse Hericart de Thury*, once about as popular as Wilson's Albany in the United States, is still the leading strawberry of English gardens.

OUR COLORED PLATES.—It is gratifying to the publishers to find their efforts so well appreciated by the press and the horticultural public. As we have descended to no method to increase the circulation of our magazine beyond its own merits, whatever these may be, so we have not sought influence to get any public praise of our work. The kind notices of our contemporaries—the unbiased suggestions of their own critical minds—are the more highly esteemed.

It is not often that a "Prophet is honored in his own country," and we therefore highly esteem the notices of the Philadelphia daily newspapers, which have also been particularly encouraging. The *Germantown Daily Chronicle* wishes we could give the beautiful plates every month. We may do so when our circulation reaches twenty thousand. It was quite an experiment this year. The plates were given without any increase in subscription price. It was a trial to see if our friends would be as liberal with us in obtaining new subscribers from among their friends. We are pleased to say that the circulation has so far increased, that, though not yet paying to the extent we wish it to, we shall continue the experiment another year.

Our readers will remember that subscriptions to the GARDENER'S MONTHLY are invariably in advance; that these mostly fall due between December and January, that notwithstanding these plates could not be bought for less than 25 cents each, the whole subscription price of the maga-

zine is but two dollars a year; and that for this the publishers hope every subscriber will send two dollars for another subscriber, along with his own.

Our next plate will be in the December No.

A NEW POWER IN AGRICULTURE.—A story is given in the *Augusta (Georgia) Chronicle*, to the effect that a planter near Midway, in South Carolina, has cultivated his entire farm this year, so far as ploughing is concerned, with an alligator. This domesticated silurian is described as being unusually large, weighing about 350 lbs., and being perfectly docile. He is reported as working splendidly in plough harness, and being far superior to mules or horses. His only failing is a difficulty he has to repress the natural penchant for having a little nigger for dinner, a circumstance that may save the race of alligators generally from being broken to harness.

[Of course this story is true, and we shall soon have a crusade against the introduction of these "haythens," on the ground that they are depressing the price of labor.]

GRAPE VINE INSECT.—In answer to a Dauphin County, Pa., correspondent last month, we stated erroneously that the warts on the grape vine leaves were caused by *Tettigonia vitis*. It should have been *Phylloxera vitifolia*.

NAMES OF PLANTS.—*Mrs. T.*, Carbon Cliff, Rock Island County, Ills., writes:—I am about to so freely avail myself of the privilege of asking for information, that I almost fear you may feel inclined to revoke the permission so kindly given some month since. Enclosed are some specimens which I shall be glad to have named.

No. 1. is a plant given me under the name of Caryomolis.

No. 2. was called "Star Petunia." The flowers begin to open about sunset, and are exceedingly beautiful when transmuted to silver by the moonlight, but they wither in the morning sunshine.

No. 3. was sent me as "Adam's Apple." It has not blossomed, but you may recognize its peculiar leaf.

No. 4. I know nothing of except that it is an exquisite little plant. I used to see a plant, when a little girl, called by the homely name of "catnip geranium," the leaves were often half white and half green, and as I remember it, must have been suitable for a hanging basket. Can you,

from this description, give me its true name? I would like to obtain it for "auld lang syne."

Please tell me the best time and manner to remove from its native woods the trailing arbutus, a flower so very dear to me by early associations that I would gladly, if possible, transfer it to my western home. Last fall a friend gave me the branch of a white flowering zonal geranium. I divided it into four pieces, each of which grew. Two producing white blossoms, and two trusses of a beautiful pink. I cannot be mistaken, for I had no other cuttings at the time, and watched these with a daily and loving care.

While finding in your *Monthly* nothing which is not exceedingly interesting, I consider myself under especial obligations for the publications of such articles as that of Miss A. G., in the July number, and others of a similar character. If successful amateurs would more frequently communicate their methods, with the simple means within the reach of all, they would win the gratitude of multitudes of their flower-loving friends.

[No 1. is *Malvaviscus mollis*. 2 a species of the tobacco family called *Nicotiana noctiflora*. 3. is of the tomato family, *Solanum hystrix*, so far as we can judge by the leaf alone. 4. is the variegated variety of the Sweet Alyssum, as you justly say, "an exquisite plant." The Catnip Geranium may have been a variegated zonal of which there was one many years ago, before so many modern improvements were made in it.

We should try trailing Arbutus in spring. It has been considered one of the worst plants to transplant. If you succeed it will be a triumph. But we think the fault is that it is put into the open sun, and in too heavy a soil. It likes partial shade and loose earth which is cool, and not wet. There are some white zonale geraniums which often have a pink tinge when fully open, but if the flowers were pink when the flowers first opened, it adds much to the interest, as this power of change of color in flowers has not been much observed, except where the flowers were striped or parti-colored.

The questions are not at all too long or too numerous. Our Magazine exists for the sole purpose of being useful to its readers; and how better can we serve them than by knowing and responding to their wants? We are rather the obliged party.]

FRENCH GARDENING AND THE WAR.—The *Gardener's Chronicle* reports that the gardeners

and officers of the gardens and museums of Paris are "off to the front." Mr. Buist, the well-known nurseryman of Philadelphia, was in Paris when the war broke out, and narrowly escaped some of the "honors of war." Taking notes of the sizes of some of the trees in the parks, he was supposed to be spying out the fortifications, and was arrested accordingly. He however escaped conviction, and was ultimately liberated. War is bad for gardening all round.

THE MANEAN APPLE.—This beautiful apple was recently exhibited at the Pennsylvania Horticultural Society, by Lorin Blodget, Esq., from Mr. F. R. Miller of Sugar Grove, Pennsylvania, and is a seedling from *Tallman's Sweet*. It is not our custom to describe fruits which have already

been described by other authorities. This has already been done by Mr. F. R. Elliott, in *Rural New Yorker*. But in this instance our notes seem to differ a little from the original, so we offer them here:

Fruit oblong conic, inclined to irregular ribs. Skin whitish yellow, blush on the sunny side. Stem slender, not projecting beyond the fruit, sunk in a deep, often russetty cavity. Calyx colored, medium sized, in an irregular basin medium depth; size large, weight light, core and seeds small, flesh white, with a sweet taste, and pleasant aroma.

The fruit was rather too early gathered to judge well of its quality; but it is evidently a larger and better apple than *Tallman's Sweet*, which it much resembles.

BOOKS, CATALOGUES, &C.

SATURDAY EVENING POST.

A happy old age is the usual sign that one's life has been useful and virtuous. Here before us, amongst our exchanges, is the *Philadelphia Saturday Evening Post*, nearly in its fiftieth year. It is so well known as one of our best family and literary weeklies, that it needs no commendation from us. Our purpose here is to commend one of its articles on the Simmons bequest of near a million and a half for an educational purpose in Boston. Most all of these sums go in expenses. It is a pity that those who intend to do good in this way, do not look to aiding those in which the machinery already exists. We want not so much new schools or colleges, as help for those which are now struggling along.

WE have received the retail catalogues of the following nursery firms:—Dreer's Catalogue of Bulbs, 714 Chestnut Street, Philada.; F. K. Phoenix, Bloomington, Ills.; Harden & Cole, Atlanta, Ga.; Jabez Capps & Son, Mt. Pulaski, Logan County, Ills.; Storrs, Harrison & Co.'s, Painesville, Lake County, Ohio; C. L. Allen & Co., 74 Fulton Street, Brooklyn, N. Y.; Ell-

wanger & Barry, Rochester, N. Y.; Herendeen & Co., 19 Seneca Street, Geneva, N. Y.; J. W. Manning, Reading, Mass.; Graves, Selover, Willard & Co., Geneva, N. Y.

Also the following wholesale:—Alfred S. Sheller, Lewisburg, Pa.; Robert Douglass & Son, Waukegan, Lake County, Ills.; T. Sprague & Co., Erie, Pa.; Storrs, Harrison & Co., Painesville, Ohio; Miessner & Crittenden, Waterloo, Iowa; Dingee & Conrad, West Grove, Chester County, Pa.; George T. Fish, Rochester, N. Y.; E. Y. Teas, Richmond, Ind.; Musgrove, Peull & Barnes; Hoopes Bros. & Thomas, West Chester, Pa.; C. T. Southwick & Co., Dansville, N. Y.; George Raker, Toledo, Ohio; T. C. Maxwell & Bros., Geneva, N. Y.; Robert Douglass & Sons, Waukegan, Ills.; S. Boardman & Sons, Rochester, N. Y.; Frost & Co., Rochester, N. Y.; Graves, Selover, Willard & Co., Geneva, N. Y.; James Draper Worcester, Mass.; W. S. Little, Rochester, N. Y.; Lindley M. Ferris & Sons, Poughkeepsie, N. Y.; E. H. Skinner, Rockford, Ills.; Merrell & Coleman, Geneva, N. Y.; Frost & Co., Rochester, N. Y.; Pinney & Wead, Sturgeon Bay, Wis.; C. L. Van Dusen, Macedon, N. Y.; Otto & Achelis, West Chester, Pa.

E. Moody & Sons, Lockport, N. Y.; H. E. Hooker & Bros., Rochester, N. Y.; Sears, Henry & Co., Geneva, N. Y.; W. F. Heikes, Dayton, Ohio; Harden & Cole, Atlanta, Ga.; Barnes Bros. & Co., Young America, Ills.; Smith, Clark & Powell, Syracuse, N. Y.; D. F. Holman & Co., Office 115 Madison Street, Chicago, Ills.; John Wampler, Trotwood, Montgomery County,

Ohio; T. B. Yale & Co., Rochester, N. Y.; F. Trowbridge, Milford, Conn.; E. Moody & Sons, Lockport, N. Y.; G. W. Wilson & Co., Bendersville, Pa.; Pratt & Co., Geneva, N. Y.; Robert J. Halliday, Baltimore, Md.; Hargis & Sommer, Quincy, Ills.; Olm Bros., Springfield, Mass.; W. H. Lyman, Leverett, Mass.

NEW AND RARE FRUITS.

ALETHA GRAPE.—Samples of fruit of this new grape were sent by Mr. A. M. Squire, of Ottawa, Illinois, where it is said to have originated. It evidently belongs to the *Labrusca* family, such as the Concord, Hartford Prolific, Ives Seedling and others.

This year, at Ottawa, the Aletha ripened with the Hartford Prolific at Alton; for which it would seem that it is some ten days earlier than the last named variety. One of the bunches received was shouldered, while others were like the accompanying cut, which shows the bunch and berry two-thirds the natural size. In a note accompanying the specimens, Mr. S. says:

"This grape is a seedling of the Catawba, and in ripening it is fully ten days in advance of the Hartford Prolific. It does better on side hill land than in my garden, which is elevated bottom land. It has never mildewed or rotted, and holds its fruit well. The vines are strong and vigorous, in this respect, excelling its parent, the Catawba." This year the bunches are smaller than usual, but I think on account of drought.

This grape would ship well, provided the berries do not, like those of the Hartford Prolific, part too easily from the stem.

We see no reason why this variety may not prove as good for the production of wine as Concord, or Ives Seedling, in which event it will become valuable somewhat further north than it is possible to sufficiently ripen some of our best wine grapes.

Description.—Bunches medium size, stem long, berries hanging rather loosely, skin very thick, color, dark, purple, juice nearly black, staining the hands, or mouth, more than any other variety with which we are acquainted. Flesh quite pulpy, with a decided foxy aroma; in it foxiness

and astringency it is much the same as a well ripened Isabella.—*Prairie Farmer*.

SUMMER BEURRE D'AREMBERG.—This new Foreign Pear, was exhibited for the first time in Philadelphia, by Dr. J. S. Houghton, at the late meeting of the Horticultural Society. The fruit is small, broad pyriform with an even surface. The color is a dull greenish yellow, much overspread and netted and traced with russet. The stalk is about three-fourth inches long, rather stout and curved, set in a shallow cavity, with a small raised side or tip. The calyx is nearly closed; basin acute, deep and strongly marked with furrows; flesh white, melting, slightly granulous, and slightly vinous, but with a rich, sweet aromatic juice that will class it as pomologically "very good to best." The core is medium; seed large, obovate oblong, light brown, with a dark line on edge. It ripens about middle of September in this latitude.

DUNCAN'S FALL BLACKBERRY.—Of this blackberry I can say that one plant in my grounds has exhibited as great productiveness as the Kittatinny or any other sort; that its fruit is as large as any of the best sorts, and that it has ripened side by side in the same soil and with the same care earlier than any except Mason's Mountain, which by-the-by, with me has nothing but its earliness to commend it. One cane of Duncan's Fall had eleven laterals averaging five sub-laterals each, and on each of the sub-laterals nine perfect berries—making nearly five hundred berries on one stem.—F. R. ELLIOTT, in *R. New Yorker*.

NEW AND RARE PLANTS.

LINARIA CYMBALARIA VARIEGATA, or Variegated Kennilworth Ivy, a neat drooping plant with ivy-like leaves, the centre of which is a bright pea green, with a deep edge of white,—is a plant peculiarly adapted for hanging baskets or vases, being found in Europe, growing upon old walls, often without soil. A slight crack in the old mortar is sufficient to germinate the seed; when once started it grows freely. Flowers are lilac. It grows best when shaded from the mid-day sun.—W. DAVISON, *Brooklyn, in R. New Yorker*.

BOUVARDIA DAVIDSONII.—This plant originated with Mr. Wm. DAVIDSON, a well-known Brooklyn florist, from a plantation of the common pink sort, *Bouvardia Hogarth*, which it resembles in all respects, except that the flowers are pure white. The great desideratum with florists for winter flowers has been a free growing, white flowering, *Bouvardia*. There are several distinct species having white flowers, but they are all of delicate growth. Judging from the parentage of the one now before us, it is likely to be robust as the pink variety, from which it originates; if so, the raiser, Mr. DAVIDSON, has a little fortune at command from his good luck.—*Peter Henderson*.

NEW GERANIUMS.—Mr. W. H. LYMAN of Leverett, Mass., has issued engravings of the Double Zonale, Mad. Lemonie, also of the new "tricolors" Black Prince, Mrs. Dunnett, Prince of Wales, and Sir R. Napier.

GESNERA EXONIENSIS.—A correspondent of *Gardener's Weekly* says:—I now come to the magnificent new plant *Gesnera exoniensis*, one of the finest acquisitions of the day. All who particularly require plants for dinner-table decoration must hail it as a boon, coming into perfection as it does a time (the winter months) when plants adapted for that purpose are very scarce, and the majority of those we have unsuitable for the purpose. To say nothing of its brilliant flowers and handsome leaves, the very habit of the plant will recommend it, as it is leafy, dense, and compact; the lower leaves almost cover a six-inch pot by drooping over its rim. The brilliant masses of intense orange-

scarlet flowers and the handsome dark velvety leaves quite distinguish this *Gesnera* from all others, and it must be considered indispensable for all who require flowers through the dullest month of winter: and, indeed, without its flowers the leaves are in themselves very beautiful.

NEW ONIONS.—Carter & Co. of London have raised bulbs of the "Giant Rocco," 3 lbs. 9 ozs.—Nation Red, 5 lbs. 1 oz.—Grove Tripole, 3 lbs.—

NEW WIEGELAS.—*Purpurata*. Dark purplish—red flowers. Best kind out.

Isoline. Flowers large, pure white. Blooms free.

Hortensis nivea. Small silvery-white flowers.

Multiflora floribunda. Deep crimson flowers.

Arborea grandiflora. Large leaves and flowers—distinct.

Rosea nana variegata. Dwarf. Leaves striped with white.

Anabilis variegata. Leaves striped with pale green.

ONCIDIUM VARICOSUM var. ROGERSII.—Few species of the grand genus *Oncidium* have yet been met with of a more showy and ornamental character than that which we now describe, from a fine specimen which bloomed last autumn in the collection of the Messrs. Veitch & Sons, of Chelsea. The flowers, indeed, are quite equal in size and beauty to those of *O. Marshallianum* and *O. pectorale*, while in brilliancy of color they far surpass those of *O. macranthum*. The plant was introduced into this country by Dr. Rogers, of East Grinstead, after whom it has been named; and was exhibited by him for the first time when just going out of flower in November, 1868. Both *O. varicosum* and the variety under notice are natives of Brazil, the latter differing from the former chiefly in the larger size of its flowers, and in the fewer crests developed on the disk. It is one of the more ornamental of its race, and all the more valuable for its habit of flowering during the late autumnal months.

The habit of the plant resembles that of *O. bifolium*. The pseudo-bulbs are of a long ovate form, and somewhat compressed and ribbed;

they support a pair of ligulate-lanceolate acute leaves, while from their base proceeds an ample branched nodding panicle of large yellow flowers. The sepals and petals are quite small, pale greenish-yellow, marked with brown bars. The lip is large, much crested at the base, where it is mottled with reddish brown; it is furnished with rounded basal lobes.—*Journal of Horticulture*.

PANSY "CLIVEDEN YELLOW".—There are four different colored flowers included in the list of Cliveden Pansies, viz., blue, purple, white, and yellow. Although I possess three out of the four colors, yet my experience of their claims as bedding plants does not warrant me in saying anything in their praise, save and except the yellow variety. Of this I had last season two small beds, which continued to produce an abundance of flowers from March to about the middle of August. My belief is that they would have continued to afford the like satisfaction, in regard to their blooming qualities, until the month of October, but for neglect in our omitting to water them at regular intervals as heretofore. As a dwarf yellow bedding plant for spring and summer blooming, I can with confidence recommend it; but the soil should be rich and kept in a moist state during hot weather. The habit of the plant is very compact, and the growth vigorous. My mode of propagating it is by division of the roots. These are planted in a nursery bed, and having established themselves, they are removed to their final quarters in November. Of course, like other varieties of Pansies, they strike freely from cuttings either in the spring or autumn. Selecting the young wood for that purpose, they may be inserted in a prepared bed, alongside a fence or wall with a northern aspect; the surface should consist of an inch or two in depth of sand. Protect them with hand-glasses until rooted.—J. F. M., in *Gardener's Weekly*.

AQUILEGA CÆRULEA.—This is one of the greatest acquisitions to our list of hardy herbaceous plants. It is thus truthfully described in the *American Horticultural Annual* for 1867: "A *Cærulea* from the Rocky Mountains, and recently introduced into cultivation, is the handsomest of the genus. In England, it is declared to be, 'not only the Queen of Columbines, but even the most beautiful of all herbaceous plants!' The color is white and violet blue, and the remarkable long spurs give to the flower an appear-

ance both singular and graceful."—JOSIAH HOOPES.

ROSE PRINCESS CHRISTIAN.—"This has been so frequently before the public that we need do no more, in this place, than describe the color of the flowers, and the character of the plant. The color ranges from deep salmon to rosy peach, according to the age of the blossoms, and holds on clear and bright to the last. There is a peculiar and beautiful gloss on the face of the petals which the pencil of the artist cannot portray, and which gives it distinctness. The flowers are very large, double enough, globular in the bud state, and finely cupped when expanded; and it gives forth these flowers continuously and abundantly from June to November. The growth is robust, and constitution hardy, and the foliage and habit distinct and of a pleasing character.

"This promises to be a good exhibition Rose when taken in a young state, and a grand Rose for the garden at all times. Mr. William Paul, of Waltham Cross, is the introducer of this novelty, which, we learn, will be distributed from his nurseries in May next. Three first-class certificates have been awarded to the Princess Christian during the year 1869—one by the Royal Horticultural Society, one by the Royal Botanic Society, and one at the Crystal Palace Rose Show."—*Florist and Pomologist*.

VIOLET MARIE LOUISE.—Van Houtte, in the "*Flore des Serres*," introduces a new variety. Flowers large, double, outer part of petals lavender, centre blue, peduncles long, aspect novel.—

CARAGANA JUBATA.—The *Journal of Horticulture* says, has proved hardy at Boston. It has white pea-shaped blossoms. *Caragana arborescens* a yellow flowered old kind is not as often seen in ornamental ground as its merits deserve.

TELFARIA OR JOLIFFIA AFRICANA.—This plant was formerly in Mauritius, but has for some as yet unexplained reason completely disappeared from the island. It being useful as well as ornamental, it grows to a great height and bearing seeds which yield a rich sweet aroma. It was reintroduced, and, at the request of the Governor, a supply of seeds has been forwarded from Zanzibar by Dr. Kirk.—*Gardener's Weekly*.

DOMESTIC INTELLIGENCE.

TRAINING GRAPE VINES ON TREES.—In the Cincinnati Horticultural Society, Mr. Thompson stated that he lets his grape vines run at random over trees, and that he has great success in this plan.

Now this may be new to the grape growers about Cincinnati, but it has been my practice for the last twenty-five years, to let them run just where they like and climb higher and more higher still, if they please; and I always have an abundant yield of grapes, notwithstanding Dr. Warder's opinion to the contrary.

I must confess that I feel considerably elated when I contrast my vines with those on the vine clad hills around Cincinnati. Whilst on one of my vines there will be thousands of bunches of grapes without five minutes labor in a year, those little pipe stem vines, tied to stakes, and requiring constant care, only produce a few bunches.

Now for the theory. You little dwarfed and spindling vines can have only a corresponding amount of fruit. It is nonsense to talk of vines overbearing for two or three years, and then not bear at all, unless they are cut and trimmed. Experience proves the contrary.

If any one does not agree with me, he is welcome to his theories, whilst I can and do have an abundance of grapes. I have used sulphur more than twenty years, and with benefit, to prevent rot. Rot is not caused by a fungus, as some suppose, but is caused by some insect puncturing the grapes, whether to deposit their eggs or not I don't know, but we presume it is for that purpose; yet I never succeeded in finding any eggs or worms in a rotted grape. Well, says one, how do you know they have been stung by an insect? Because I have seen the puncture and a jet of juice which had oozed out. Whenever you find a grape that is stung, tie a string to it, (for a mark so as to find it,) and watch the result. After a longer or shorter period it will turn whitish round the place where stung, and finally black, and continue to spread until the whole grape is rotted. If at any time with a sharp knife you cut out the black spot, the remainder of the grape will grow and ripen, thus proving there is no defect in the vine.

Upon this discovery was based the sulphur remedy for the rot, being distasteful to all the insect tribe. Fumigations with sulphur in the

evening is better than the dust, as I think the depredators work at night. I have no certain knowledge of the enemy, but always find a few large yellow bugs on the vines when the grapes are rotting—they are very shy fellows. Whether friend or foe I know not, but kill him when I find him.—*Cor. Cincinnati Gazette.*

SOME OF THE GARDENERS OF MANCHESTER, N. H.—*The Mirror* says: "On the west side of the river, in Ward Seven, we find a few persistent and successful gardeners. Among them is C. S. Fisher, who has as much practical knowledge of the science and the art as any man in the city. Having been much in the grocery trade and market business, he knows what will sell, and adapts his plans to the demand. He may be put down as reliable authority in the business.

Another excellent gardener in the same ward, and one of the best in this section of the State, is Joseph N. Prescott, of the Octagon House. On his sandy land he annually reaps a liberal harvest, bringing to market some of the choicest vegetables of their kinds. He excels in the production of tomatoes and the cabbage tribe, though he seldom fails in any branch he undertakes.

On that side of the Merrimack are other good gardeners, of whom we know less,—Dickey, Worthley, George, Rollins, and even our friend Miller, who brings fresh vegetables from his Bowman Brook farm to his market house.

On the east side, we drive down the River road, and cannot get past the jail without being attracted by the two acres of vegetables connected with that institution, and cultivated with great success by that farmer, mechanic and business man, Jailer Fairbanks. It will pay "to go to jail" and see the jailer's garden.

A short mile further down are several good gardens, though coming more properly under the head of "family" rather than "market" gardens. Our detective friend Spear can boast of "some" in the fruit and vegetable line, while "Aunt Nancy Baker," Oliver Mitchell, and others thereabouts, can report a liberal variety of products in a limited space. Major Ingham is fighting manfully against the drouth, and from his sandy

soil is coaxing an abundant support, while the "poorplace," close by, shows a broad area of melons and other garden crops. Then further south, we have the Websters,—Frank and David,—who are doing something in this same line, but not half enough, and between them "the judge," as his neighbors are accustomed to designate that industrious and upright man, John Calef, Esq. He is the first, year by year, to furnish the market with pieplant stalks, and the latest in the season with his mammoth cabbages.

Over on the Nutt road are a few market gardens, the most important being on the old James Nutt farm, where Mr. J. E. Clough has made a good beginning, and produces compensating crops in great variety. We may include in the same record the Barker garden, which has, until the present year, been in the care of Mr. Clough. Though dry at the surface, it is covered with a burden of the green that indicates productiveness even now.

Out at Hallsville, and by the Centre, the two principal gardeners have been Charles A. Hall, recently deceased, and his working neighbor, P. O. Woodman. The acres left by the former, like the memory of the departed, are kept fresh by filial hands, that succeed to their father's property, industry and integrity.

There are many excellent gardens on a smaller scale all through this section, covering the hills to the east of the city, and extending out to the productive acres of our ex-conductor friend Eaton, and up the mammoth road to include the City Farm, and the good land adjoining "

SEEDLING PEACH TREES.—Our Jersey friends are often exercised about the question, whether peaches raised from seeds and never budded are better than those inoculated with other varieties? There is much difference of opinion, and many papers have been written about it; but it is one of those mixed questions which have a dark and a bright side to each view, and can only be discussed as a balance of advantages. And first, we think, as an abstract question, a seedling tree is more likely to be healthy than a budded one; and yet millions of budded trees are as healthy as any seedling tree can be. But supposing that a tree had any disease, it is far more likely to be propagated by budding than by raising seed; for propagation by cutting, budding, grafting, or any other such mode, is simply increasing the

individual just as it is; while from seed is really the creation of a new variety. Sometimes diseases are hereditary; hence a disease of this kind might follow a seedling peach, but not near the number of diseases could follow, because so few are of this nature.

In the abstract, then, but yet of little practical importance, it is a fact that a seedling tree is healthier. There is another point, however in favor of the seedling tree. When a seedling is budded it is usually done near the ground, and the next Fall the top, four or five feet high, is cut back to where the bud is set. It is now known that all pruning is a check to vitality. But this also is true only in the abstract. The check is but temporary, and would not show its evil influence except under very severe circumstances, and is only called in to explain occasional and severe cases, of injury. The check is so temporary that the tree soon recovers, and in no more cases do any permanent injury result than to a man from having the toothache.

But the great disadvantages of seedling peaches lie in some of the very facts for which they are usually esteemed, namely, their disposition not to come like their parents. If we sow pits of early peaches they may come late; if we want late we are as likely to get early. Then showy peaches are often most favorable to some markets, or free stones or large fruit; but the seed is just as likely to give us pale faces or clings, or small fellows of no account. In some markets it is very important to have them in just at certain times—a day or more less is a question of many dollars. This can only be calculated when we know exactly what kind we plant, and this is only to be known by employing budded trees.

In view of the fact that so few diseases follow budding more than follow seedling trees, and in the face of the facts in favor of budding them, we think the advantages are clearly in favor of budded and against seedling trees.—*Weekly Press.*

KENTUCKY STRAWBERRIES AT J. S. DOWNER'S.—Among the most successful cultivators of this delicious fruit, our friend, J. S. Downer, of Fairview, stands deservedly high. The varieties he has originated are now universally recognized as possessing every desirable quantity, and as an acknowledgment of his merits as a cultivator, we transfer to our columns the following truthful notice, written for the *Western Ruralist*, by one of the leading horticulturists of our State, A. D.

Webb, Vice-President of the State Horticultural Society:

"As our strawberry season is coming to a close, I thought it probably might interest some of the readers of the *Ruralist*, who take an interest in the cultivation of this, the first to ripen and the most delicious of the small fruits, to be informed of the results of some of the prominent varieties now before the public. I do not think I exaggerate when I say our soil seems peculiarly adapted to the production of this fruit, probably equal to any. I think this fact was fully demonstrated to every one who attended the meeting of our Farmers' Club, and witnessed the exhibitions made there from time to time during the season, of berries measuring from four and half to six inches in circumference, and weighing from one half to one ounce, these too in quantity without any special culture, or any fertilizer being used.

The varieties most popular with us this season were Chas. Downing, Kentucky, Green Prolific, French's Seedling, Filmore and Russell, in the order named, all very large and fine. Since the introduction of the three first-named varieties, the old and much esteemed Wilson has been consigned to a back seat by some of our cultivators, yet it is perhaps a better shipping quality than

either of the others, but can not compete with them in uniform size and appearance.

I certainly regard the Kentucky as the handsomest and most attractive berry I ever saw of the light color variety, good flavor, and very large size. There is certainly a debt of gratitude due Mr. J. S. Downer for originating and introducing the Charles Downing and Kentucky, both of which possess superior qualities and are decided acquisitions. We have a number of other varieties on trial, but it will require another season to test their merits, if they possess any."—*Home Journal*.

VEGETABLE PROFITS IN MASS.—A correspondent of the *Boston Cultivator* reports his success with raising vegetables, four miles from a manufacturing village. The two requisites adhered to were good soil and thorough cultivation. The entire grounds were a few acres, and a small part was occupied.—Half an acre of peas gave seventy-eight bushels (in pod of course) at \$1.90 per bushel, or \$148.20. Sweet corn amounted to \$70 from half an acre. Two hundred hills of pole beans gave \$50. Over \$300 were received in less than three months. Work was done out of shop hours.

FOREIGN INTELLIGENCE.

HOW TO PROVE THE VALUE OF A MANURE.—At a recent meeting of the Twickenham Local Board, to consider the various schemes for the disposal of the sewage of that town, the Rev. W. Freeman informed the Board of the result of his recent inquiries respecting the A B C process. Respecting the value of manure, he read several letters from persons of authority, who spoke of it in high terms. He produced two sticks of rhubarb grown in the same bed—one with the native guano and the other with the stable manure—the sample said to have grown with the former being much finer than that produced with the latter. So far, so good; but, unfortunately for the reverend gentleman's arguments, one was a stick of *Victoria*, and the other of *Linnaeus*. It is hardly necessary to say that the stick grown with the aid of the native guano was from the first-named variety. We shall not be surprised to see in the report of the next meeting of the Board, that flowers of Madame Vaucher and Tom

Thumb geraniums are brought forward to show that the manure has such a powerful effect upon the color of the flowers of plants grown with its aid as to change them from a most brilliant scarlet to a pure white. At all events, one example is quite as reasonable as the other.—*Cot. Gardener*.

PINE APPLES IN ENGLAND.—At the July meeting of the Royal Horticultural Society, the competition in Pine Apples was very good. Mr. Paten, gardener to H. S. Lucey, Esq., Charlotte Park, Warwick, is placed first, with three handsome, well-colored fruits of two Moscow Queens and a Smooth Cayenne, the second prize being awarded to Mr. C. Allen, gardener to J. Clegg, Esq., Withington Hall, Cheshire, with three handsome Providence, very even in size, and well finished-off. Mr. Gardiner, of Easington Park, coming in third with two very even Mos-

cow Queens, and a very good Providence. Mr. G. Ward is third with Charlotte Rothschild, 7 lbs. 10 ozs., and a smooth Cayenne, 7 lbs. These are rather over-ripe. For single Pine Apples, the first prize was again awarded to Mr. Paten, for a well-ripened Enville Queen with a number of crowns, weighing 8 lbs. 14 ozs. The second prize went to Mr. Gardiner, and the third to Mr. Ward.

FRUIT GROWING.—When we become more intimately acquainted with the science of fruit growing, we find that there is scarcely a spot in the entire West, but almost all the fruits can be made to do well, and yet large orchards still be failures.

We recently heard an old fruit grower of Iowa say that he would not take the largest orchard in the State as a gift if he were compelled solely to rely upon it for an income and support, and yet this same individual grows fruit and makes

money out of it, in connection with other business.

We sometimes fear that the Gold Medal Premium received by the State of Kansas on superior fruits at the last exhibition of the American Pomological Society, will be the means of its inhabitants losing money in their extravagant ideas of too extensive plantings. We saw but little fruit in Kansas, and that State is subject to failures from similar causes as are the States immediately east of it.

An exclusive business in grape growing may be more nearly successful than any other fruit, and then only in connection with a wine manufacturing establishment. Grape vines are easily grown, less trouble to manage and a fruit crop more certain than that of any other variety of fruit. We would caution planters of large orchards against making fruit growing an exclusive business, unless they have a good deal of surplus money to rely upon in years of failures.—*Iowa Homestead*.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The Annual Exhibition was held on the 15th, in the Society's Hall, in Philadelphia. A very marked improvement was apparent in the plants exhibited, both in rarity and in manner of culture. Usually it has been the custom of the Society to get loads of plants from the gardens of amateurs and nurserymen for the mere purpose of decoration. This time all, or nearly all, came as the free offerings of the competitive or public spirit of those who exhibited. We make for the benefit of our distant readers a few notes of the leading articles, which may interest them.

Most of the collections of plants had some of the handsome leaved Caladiums, now so well known. Those grown by Mr. Wm. Joyce, gardener to Mrs. M. W. Baldwin, were particularly well grown. We noticed one in a 14 inch pot, which had over 100 well developed leaves on it. Here was also *Dracæna Cooperi*, one of the richest colored of this very ornamental class of leaf plants. The *Vriesias* with their pineapple-like leaves, and purple and scarlet flowers, were not as fine specimens as we have seen of them, but still

attracted much observation. In the collection also were *Gongora maculata*, a well known orchid with the spotted flower, looking for all the world like a dead insect of some wondrous color. *Clerodendron fallax* with four spikes of its rich crimson flowers, a very good specimen of the new *Abutilon Thompsoni* now so much sought after on account of its gold and green variegated leaves; and a particularly pretty plant of *Lycopodium Lyali*, the two forms of foliage on which always attracts the curious. There was also a plant of *Eucharis Amazonica*, the pure white flowers of which are so valued for cuttings, and a butterfly orchis, *Oncidium papilio*, with eight expanded flowers, a number not often seen at once.

Mr. Buist's collection was as usual particularly rich in new or rare plants. Here was a representative of the genuine old Dragon's blood tree of Teneriffe, which had stood for so many hundreds of years, a landmark to sailors, and only recently blown down—the *Dracæna draco*. The leaf is more like a *Yucca gloriosa* than the leaves of *Dracenas* we generally see. A little dwarf Bambo, variegated, *Bambusa Japonica variegata*, was a charming little thing. *Latania*

rubra is a very rare fan palm, particularly striking through the unusually red margins of the leaves and stalks. The interesting Dalechampsia Roeziana was more highly colored than usual. This curious plant has bracts as rose colored as in the allied Poinsetta, yet of a very different appearance. Maranta Veitchii was one of the most interesting of the new species of this genus. Allocasia Jenningsii looked as much like a green Caladium, with deep ink blotches artistically run over parts of the blade; Gesneria refulgens with leaves like rich, rosy velvet; Allamanda violacea, a real rosy violet flower. Besides these there were heaths, and many rare things not often seen. But the gem of the collection was a very rare fern, Adiantum Farleyanum. We have seen many beautiful Maiden-hair ferns, but this is certainly the most beautiful one ever grown.

Mr. Hugh Graham, who is now taking rank as one of the leading florists of Philadelphia, although only a few years established, had one of the most attractive plants in the room in the shape of Clerodendron Balfouri. This plant has the calyx of a pure white, while the corolla is of a scarlet crimson. This plant has hundreds of its striking flowers in full bloom. It is one of the trailing kinds, and was grown over conical wire. He had also some beautiful orchideous plants. The Zygopelaton Mackai was one with several spikes of its sweet scented brown purple flowers. We suppose only the difficulty of increasing it makes it so rare, as it is as easily grown as Blechnum Tankervillei, and quite as interesting. He also had a Catleya Forbesii, which, though not as showy as other Catleyas, had the merit of being an abundant bloomer, and apparently an easy one to grow. Some highly interesting plants were in the collection grown by Mr. Alexander Newett, gardener to H. Pratt McKean, Esq., amongst the most beautiful of those grown chiefly for their interesting leaves were Begonia amana and B. incana; Peperomia maculosa, a remarkably pretty thing, especially considering that there are at least 200 species known to Botanists which gardeners would not look at; Anthurium grande; Rapphiodendron plicatile, a sort of Aloe, with curious plaited leaves; Yucca versicolor, which has a gold band down the narrow green leaves; Litobrochia vespertilionis, the bat's-wing fern; Carica papaya, the true West Indian Papaw, and some others. But the gems of the collection were a Callistemon speciosum, or bottle brush Metrosideros, a perfect specimen of six feet high, well trained with many

scores of crimson brushes on it; and a plant of Philodendron pertusum, the best grown ever seen at our exhibitions. The plant is interesting from the fact that its riddled leaves are a perpetual reminder to insure against hail stones; while the fruit, though of the Arum family, is equal to Pineapple when mature.

He had also a large and well grown plant of Tabernaemontana citrifolia, the leaves looking like a narrow lemon, the flowers quite as sweet but double the size. This will make a good white flower for the bouquet maker. Mr. James Wright had some nice miscellaneous plants, and amongst Mr. W. Harris' was the now getting common variegated Boussingaultia Lacharmeii in flower, proving it not to be a Boussingaultia at all; but Talinum purpureum. In the collection grown by Mr. S. Hunter, gardener to Gen. Cummings, proprietor of the Philadelphia Day, was a very good Cyanophyllum magnificum, about four feet high, and having sixteen of its remarkably beautiful leaves. Perhaps the most generally admired plant in the room was an Australian Stenocarpus Cunninghamii, from Mr. Henry C. Gibson. It had hundreds of its curious flowers on. One flowered a few years ago at Washington, and attracted much notice from the newspaper press all over the Union. It takes a good sized house to grow one to perfection.

Mr. Thomas Mackenzie's collection was rich in the Echeverias and curious things of that character. A fine specimen of Strelitzia reginae was gay with its orange and blue bird's-head like flowers. Sedum japonicum was better than we ever saw it, and its large heads of rosy flowers made a pretty show. His best thing was Bouvardia jasminoides, which to the shape of the blossoms also added the fragrance of the Jasmine flower.

Mr. Davidson had a large and well flowered plant of his new Bouvardia Davidsoni. This is white, and as it flowers as freely as B. leiantha, will be just the thing for the florists.

Mr. D. Fergusson had two magnificent tree ferns—the Cyathea medularis. If some amateurs had these striking specimens, no money would buy them. He also had the sweet scented Crinum amabile beautifully in bloom.

Mr. Meehan sent a collection of Coleus, and a collection of sixty plants selected for the oddity of their various forms of foliage. Amongst these was the Aucuba japonica, bearing its large dogwood like berries, but which had not yet begun to turn to their final red color.

In the line of cut flowers, there were not many contributors, the hot dry season being unfavorable to excellence, Messrs. Dreer, Meehan, Buist and Gerhard Schmidt being the leading exhibitors. The Dahlias of the two last were however equal to any of former years, and both of such superior quality that the judges must have had a severe task in deciding which was the best one. To Mr. Schmidt however went the premium for the best seedling. It was of a crimson red color, large, and with numerous small cupped petals.

Mr. Buist had the first premium for Verbenas Petunias, and Mr. Dreer for Roses. Marechal Neil was conspicuous in this collection; but another yellow one, Queen of Portugal, was nearly if not quite as good.

In the fruit way the exhibition of pears was wonderful, and must have been an astonisher to those who believe the climate of Pennsylvania is unfit for pear culture. Mr. Satterthwait had 300 varieties, and each variety heaped up in great profusion. It was regarded as a great triumph by the advocates of clean surface culture, of which class Mr. S. is a leading champion.

The most interesting feature in this lot was the number of new varieties or rare ones seldom seen. Though mostly all good, it is safe to say they were few of them better than the popular and well known kinds. Some specimens of Urbaniste, for instance were equal to any of the best grown, notwithstanding it usually ranks but second rate. The most beautiful pears in the 300 were some Beurre de Montgeron. Not of first rate quality, they still bring very high price in market. The Rutter was one of the best flavored pears here. It is not showy, but for its quality it ought to be grown everywhere. It is certainly equal to the best Beurre d'Anjou. The Des Nonnes was also of very superior quality, its thick skin being rather against it. The first premium for Howell pears was also awarded to Mr. S. They were very fine samples, measuring about 3½ inches long by 3 wide.

Most of the premiums for specified varieties of pears were awarded R. Thatcher, of Darby, Pa. The best Lawrences were here, also the best Flemish Beauty. It had the best Seekels also, although we thought rather inferior to Seekels we had seen in exhibition at other times.

Ellwanger & Barry, of Rochester, had some very beautiful specimens of pears, some of the varieties being finer than any before seen. The Doyenne Boussock, for instance, were magnifi-

cent, superior in size to many Duchesse d'Angouleme. Selleck was also very large. The most remarkable thing about Barry's pears is that they are seldom rosy, but yellow or green, large and juicy, but not high flavored, and all seem to have long stems, setting all the "science," of Pomology at naught. For instance, Thatcher's Flemish Beauty had stalks over ¼ of an inch long; while Barry's had them one and a quarter, and so on of all others proportionately.

Hoopes Bro. & Thomas, of West Chester, made a fine display of pears amongst which the fine Howells were conspicuous.

Dr. J. S. Houghton had a magnificent display of Duchesse d'Angouleme, Duchesse de Bordeaux, Genl. Tottleben, varieties which somehow or another he always manages to get large and luscious, besides many other varieties.

We have said that the Pears of Ellwanger & Barry did not exhibit the fine rich colors of other localities, but the reverse of this was the case with the apples. It was impossible to show a prettier set. The St. Lawrence, Alexander, Mother, and similar showy kinds were much admired by the spectators. A variety we have not seen before, called Sherwood's Favorite, was also particularly showy. The Red Beitigheimer, a variety as large as the Pennsylvania Fallwater, but with much more color, was also in this collection, which obtained the first premium.

In the collection of apples from Hoopes Bro. & Thomas, the Porter, was of superior size, and good color. There was also in this collection some excellent summer Pennocks, and a fine Russet not often seen, called Austin Sweet. Mr. Blodgett exhibited from Mr. Miller the Mannean apple, larger and better than Talman sweet.

Mr. S. W. Noble had a nice collection of apples, which were all very highly colored. His Cornell's Fancy was awarded a premium.

There were not many peaches. The first premium went to the Nursery Association, of Chambersburg, the second also to a Chambersburg name, B. L. Ryder. What is the matter with New Jersey and Delaware, that they are to let Pennsylvania take away the honors of peach growing?

The show of native grapes was extremely meagre, as it always is in good fruit years. When there are plenty, each grower thinks his neighbor will certainly have as good or better than his—so all stay away. There were some Senasqua's, a black grape from Concord, hybridized with Black Prince; and Croton, a white between

Delaware and Chasselas de Fontainebleau, which we regard as amongst the most promising new ones now before the public. These were from Dr. Underhill, of Croton Point, N. Y. Mr. E. Vodges had some very pretty Christine grapes; also Maxatawney. Mr. Vodges is a Philadelphia amateur, and carried away nearly all the grape premiums. The foreign grapes were very good, as they always are at the exhibitions of this Society.

We are sorry that the limits of a magazine like ours will not permit us to do full justice to such an exhibition as this was. Hundreds of good things and many public-spirited exhibitors must remain unnoticed. It will not do, however, to close this brief sketch, without some tribute to the men whose unpaid labors have given this rich Horticultural treat to us. The Chairmanship of the Exhibition Committee was this year in the hands of Mr. C. H. Miller, the distinguished Landscape Gardener of Philadelphia. Messrs. Ritchie, Scott, Kilvington, Schaffer, Earl, Hayes and Satterthwait, gave much time to it; but there is no doubt that to Dr. J. S. Houghton and ex-President Mitchell, very much of the great success is fairly due, as daily, for two weeks, they gave it a large portion of their time.

TENNESSEE HORTICULTURAL SOC'Y.

[We unfortunately put this excellent description of the Horticulture of Nashville into the wrong "pigeon hole," where it has remained a month longer than it would otherwise have done. —Ed.]

DEAR SIR,—The Tennessee Horticultural Society held its semi-annual exhibition the 18th, 19th and 20th, during the same week the Agricultural Society held their fair. Both were successful, and were visited by large numbers of persons. The collections of plants at both exhibitions, were exceedingly fine. The Floral Hall at the fair ground had the fine collections of the Insane Asylum from Bellemont, the residence of Doctor W. A. Cheatham, and several collections from nurseries near the city.

The Tennessee Horticultural Society made the finest spring display ever given here, and (as remarked by that old florist, Heaven, well known to horticulturists everywhere,) was the finest Spring exhibition of plants he had ever seen in this country.

The Society felt unusual pride, from the fact that the entire collection of plants was the result

of their organization, and from green-houses constructed by its members during this time.

Many rare and new plants were exhibited, some of them splendid specimens. Irby Morgan, Esq., had a fine collection of Fuchsias, that stood over six feet high, and were one mass of bloom. Wm Heaven's display of Petunias received the first premium, as did also his collection of roses. The best general display was made by P. L. Nichol, Esq. There are few more rare and elegant specimens anywhere, than can be shown by this gentleman. He took the first premium. F. H. French, who made the second best, exhibited a double Snap dragon (*Antirrhinum*), fine in color and form, produced by him, and believed to be the only one extant at the present time. It is a good acquisition to our list of bedding plants. Messrs. Gartland, McGrady, and the President, Rev. P. S. Fall, excelled their former efforts. There were several new exhibitors this season.

The show of Strawberries, owing to the cold, backward Spring, was not equal to former occasions. The Cherries, too, were scarce. The scant display of Vegetables, from the same cause, was a source of regret. Those shown were unusually fine.

The exhibition was closed by a grand Ball, which combined resources that could not be drawn together elsewhere. The beautiful hall of the Masonic Temple, where the exhibition was held, was connected by a stairway twenty-five feet wide, with the Maxwell House, it being improvised for the occasion, decorated with statuary, vases, plants, Chinese lanterns, &c., with beautiful effect.

The Maxwell is unsurpassed by any other house in this country, and for this event was remarkably well suited. Besides a large fountain in the Floral Hall, and a small self-acting one, there was one erected in the rotunda of the Maxwell House, the base surrounded by begonias, caladiums, and gloxinias. Hanging baskets were suspended between the columns below the balcony, and Chinese lanterns above. The magnificent parlors, with the elegant galleries all frescoed in the highest style of art, were thrown open to the guests. The dining room was devoted to dancing, and the ladies' ordinary, to the supper. Two fine bands of music enlivened the scene, combining a rare display of elegance, worthy of the refining influences of the Horticultural Society. The result was eminently satisfactory, rewarding the efforts of the members in adding thus to the interest of its meetings.

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HINTS FOR NOVEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

Most of the tender plants that we desire to preserve over the season, have now been lifted from the borders, and removed to winter quarters, and in a few weeks the beds will present a rough and forsaken appearance. It is too often the practice to leave the borders just in this neglected condition till spring time returns. But the person of true taste finishes up the beds, and makes all tidy. In the absence of summer flowers even order, please.

But many persons have a reserve ground in which evergreens have been planted out expressly with the view of moving at this season of the year to the flower beds. Taken up with good balls of earth they do not miss their move, and by a little taste, a beautiful winter garden is the result. We have now so many dwarf hardy evergreens just fitted for this sort of work, that great scope can be given for the most varied effect.

Amongst these are White Spruce if transplanted every year and trimmed a little, it will keep low many years; *Abies clanbrasiliana*, *Abies compacta*; Tree Box of many varieties; *Euonymus japonicus* of varieties in shaded locations or where the thermometer does not go below zero; Junipers of many varieties; *Kalmias* and *Rhododendrons*; Silver Fir, if as with the White Spruce, it is transplanted annually and trimmed; *Mugho Pine*, American and English Yew; *Arbortives* of all kinds, and *Yuccas*.

It is not generally known, although repeated over and over again in our journal, that death from cold in winter is as often as not, the effect

of impaired vitality during summer. Hence, if a plant is in dispute about hardiness, it is frequently enough to decide the question, to know whether it was free from mildews or leaf blights during summer. Not only these matters, but other things impair vitality and thus prepare for the hand of death, before even the icy time; and a very dry season is especially one of the worst of these evil influences. The last season was a particularly dry one in many places, and many plants had as much as they could do to hold their own. Amongst these there will probably be great mortality if we have anything like an average hard winter. It will be wise, therefore, if we have anything particularly valuable, to prepare to shelter them from cutting cold, dry winds, or other severe winter conditions.

Almost all young trees are tenderer than they are when older. It is therefore no test of the hardiness of some rare thing, that a small plant is killed in the winter. Silver Firs almost always gets killed back for a few years in this section, unless protected, but yet gain a little in strength. After they are ten years old they will endure our hardest weather. So Spanish Chestnuts, English Walnuts, and many others, will die back considerably, until they get strength. Therefore, protect any valued young plant, if possible, no matter how hardy its reputation may be.

Every one who has dug up a potato knows that when the tuber has finished its growth, all between it and the parent stalk dies. If the potato were to remain undisturbed till spring, frost and other things of course uninjuring it, it would push up from the place where it stood, and a new

set of potatoes push out, and the space between them and the original, get wider every year. So year after year there would be this continual progression.—a wandering away from the first centre, until in time the living plant might be a mile away from the original spot which gave it birth. Something of this kind goes on in all herbaceous plants,—a part progresses, and a part dies every year. It is for the want of this knowledge that so many friends lose these plants. Though all herbaceous plants move in some such manner, they do not all go directly under ground, but make bunchy stocks just above ground. In their native places of growth they manage to get covered with decaying leaves from the woods or shifting sands on the plains, but in cultivation nothing of this kind can be naturally accomplished, and unless art comes to aid the plant they soon die away. An Auricula, a Primrose, or a Carnation is a good illustration of this. In the two former a new crown is formed on the top of the old one, and as the lower parts in time die away, unless new earth is drawn up, success with such flowers will not be great. The best plan is to take up and replant every few years, or cover the running parts above ground with earth so that they may have a chance to get new roots from the advancing stocks. This is noticed here at this season to show that earth is the natural covering for herbaceous plants, and therefore one of the surest ways of preserving them safe through winter is to draw earth over them. In the spring they can be unearthed and then divided and set a trifle deeper than before, which is all they want. We are often asked how to preserve Carnations, Chrysanthemums, Pansies, Phloxes, Hollyhocks and so forth safe till spring. The principles here laid down will explain the practice.

FRUIT GARDEN.

At this season of the year, "how shall I prune?" becomes the question of the day. By far too many branches are left on most trees. When the tree is in leaf, the one branch smothers out the other, and, remembering what we have already said about the value of healthy leaves, few leaves arrive at that perfection necessary to perfect the best fruit. Therefore, prune out enough of the weaker ones to give the rest every chance to develop their leaves to the fullest extent. Also prune so as to assist the plant to a conical form, as this enables the light to act better on all

parts of the tree leaves. If trees have been neglected, in pruning now severely to get them to this shape, the result will be to make them throw out shoots still more vigorously from near the parts cut away. When these shoots appear in spring, pull them out while young with the finger and thumb. The current of sap will then flow strongly into the shoots left, and the ratio of growth will in the end be nearly equal through all the branches. The flow of sap through a tree is nearly like that of water through an uneven country. A very little obstruction will turn the course; but that, once started, soon becomes as great a stream in the new, as in the old channel.

Apple trees have a habit when old of pushing out sappy shoots along the main branches. These should be cut away in addition to a similar thinning as recommended for the pear.

Dwarf apples and dwarf pears should be examined now to see what the borer is doing for them. This is the time when they do the most destruction, as they are boring down into the stems for winter protection. A cut with a jack knife *up and down* the stems so as to avoid girdling as much as possible is the most certain destruction. Then, if in spring, before the parent insects begin to work, oiled paper, or rather tarred paper, be put about the stem near the ground they can be *kept out*. It is strange that with so little time as borer hunting takes, so many thousand trees should be allowed to die from their attacks every year.

Above all for both apple and pear orchards, we bespeak a liberal dressing—a top dressing of something or another. If no manure is to be had, even common road sand will be found to have a beneficial influence.

Strawberries are much better when protected through the winter, no matter how "hardy" they may be. Very coarse strawy manure is the best material, which can be raked off in early spring. A few inches is sufficient, just enough to keep the sun off when frozen, which all our readers know, by this time, is the chief cause of loss by frost.

In cultivating raspberries on a large scale, they do best in hills, as the cultivator keeps them from crowding each other so much. For garden culture they are better in rows, the suckers to be hoed out occasionally as they grow; enough only being left that will be required for fruiting next year. Where canes are required for new plantations, of course a portion of the crop must

be sacrificed to the suckers. Most of the foreign varieties are apt to lose their leaves early in hot seasons like the last, before they are quite mature, in such cases they are tender and need protection in the winter. The best way is to shorten back one third the cane; dig out a little on one side of the bunch of plants; from the other side dig a little so as to bend the plant to the other, and then cover the canes with earth. Some bend the canes and cover without this slight digging out, as they consider the digging injures them a little, but so does the bending down without digging. The first plan injures the least.

In choosing Dwarf Pears, select those that have been budded close to the ground, as when they are replanted the stocks should be buried an inch below the pear scion, which prevents the attacks of the quince borer. If a long stem has to be buried, the usual consequences of deep planting result, and do as much injury as the quince borer. Also in choosing, select, if possible, plants that have been raised from cuttings; for layered stocks have almost always a long deep tap-looking root, on which dwarf pears do not do well. If we have to use such dwarf pear trees, better shorten some of this long trunk root before planting. Never plant what appears to be the stem of a tree far beneath the surface, under any circumstances, for diseases will be most probably an ultimate consequence.

FORCING FRUITS AND VEGETABLES.

Few subjects are better worth the attention of nurserymen, market gardeners and amateurs than this very interesting branch of gardening; but it has been greatly neglected. Whether as a source of pleasure or profit, it is an equally delightful occupation; and the remarks made we trust will be the means of awakening some enthusiasm on its behalf.

Potatoes, peas, beans, cauliflower, radishes, lettuces, tomatoes, asparagus, rhubarb and parsley are the chief vegetables usually forced; and among fruits, the apricots, cherry, fig, grape, nectarine, peach, plum and pine.

Grapes every one wishes to grow. For early forcing, they are the best grown in pots,—that is where fire-heat is used; when a "cold grapery" is employed to produce them, they are usually grown in the open ground. This is a good season to prepare for the latter mode of culture, so as to have everything ready to plant out the

vines the next spring. Houses can now be constructed from five to six dollars per running foot, and capable of growing grapes to perfection, and in many places from fifty cents to one dollar a pound can be very readily obtained for the fruit. The borders for the vines need not be expensive. A dry bottom is essential, which must be obtained either by draining, or what is better, elevating the border above the surrounding soil. A very durable and substantial border may be made by taking out the soil two and a half feet deep, and filling in with bones and broken stone, lumps of charcoal, brickbats, or any coarse material to the depth of one foot, then filling in the remainder three inches deep with sods from an old pasture, to which about a third of well decomposed cow or horse manure can be added. The border may extend under the vinery, and some ten to fifteen feet beyond.

Pot vines are usually fruited the year following that in which they are raised. Plants struck last spring, and grown all summer, will now be ready, either to put away till wanted in spring, or started at once, where sufficient heat is at command. They should be at once pruned to the desired length, usually about six feet, the laterals taken off, the canes painted with a mixture of sulphur and soap, to destroy insects; and those not just now required, either put into a cellar or shed, secure from frost, to avoid danger to the pots. Those desired to fruit early should be at once placed in a temperature of 55° to 60°, and the canes bent down to aid in causing all the buds to burst equally. This, however, depends on the condition of the cane itself. A vine with badly developed buds will not break well, no matter how well managed. The buds will only swell under the above temperature; but it is not well to start with much heat.

In a house of this character the fig may also be started at the same time, and the pine grow very well. The other fruits named will not do so well started with these, unless in the hands of greatly experienced gardeners, as the heat necessary to ripen the grapes so early is too much for them—Dwarf Beans, Tomatoes and Cucumbers, would, however, do very well. These may be sown at once for this purpose. Peaches, Nectarines and Apricots do very well planted at the back walls of vineries, and especially do they do well in tubs and pots. For the latter mode it is best to grow them one season before forcing, as better and handsomer specimens can be made from one year grafted plants. Now is the time

to select those that we may desire to force the next spring. They should be lifted and potted very carefully, and afterwards placed in a cool cellar till February. Those that were potted last spring, and have a good growth, and are established sufficient to warrant an early forcing, may at once be started in a heat of from 45° to 50°, and the heat increased to 55° in the course of a few weeks. They should be previously cleaned, as already recommended for grapes.

Plums and Cherries do not do very well forced. The difficulty is in getting them to ripen well. We have seen the best success when started with Peaches at this time. Strawberries force easier than any fruit, and in our opinion, when gone into properly, will pay even better than grapes. They may be had all the year round when a heat of 60° can be maintained, simply by bringing forward a few every two weeks. The pots of plants should be prepared in September, six inch sizes being employed. They should be started in a heat of 55°, till the flowers are set, and ripened in one of 60°. They must be kept near the glass, and the red spider carefully watched. Those who have not command of heat may have them very early by potting good plants, keeping them in a moderately dry place till February, and then setting them in frames.

A hoase fitted for Strawberry forcing is just the place to force Asparagus, Rhubarb, Radishes, Peas and Potatoes, which do not do well with much heat. Any of these may be started now either in pits or boxes. Peas are scarcely worth forcing, except as a luxury. They will not bear freely unless very near the light.

A Cauliflower pit should be in every garden where leaves or manure can be had. Radishes and Lettuce can be forced at the same time, and will be in use before the Cauliflower grows in their way. Pits of stone or brick, about six feet under and one or two above the ground are usually employed, with glass sashes over. The leaves should be filled in as early as possible, so as to get their most violent heating over before the plants are set out. A watering as they are filled in assists this, which may be known to be effected by the sinking it exhibits. It is important to have the plants set as near the glass as possible; a few more leaves, should, therefore be added before the six inches of soil required is placed on. The plants sown in September should be planted fifteen inches apart, and Lettuce and Radishes may be sown broad-cast between As-

paragus, Rhubarb and Parsley are prepared by taking up the old roots at this season.

HOT AND GREENHOUSE.

Plants stored away for the winter in cold pits, require more care for the first month or so than at any other time through the winter season. Many of them have unripened shoots, or shed many of their leaves, and unless these be cut off and removed, gangrene and decay commit distressing havoc. Air should be given at every opportunity, and nothing omitted that will, in any way tend to harden the plants, and send vegetation to rest. No more water should be given than just sufficient to prevent withering, and the temperature should be kept as near 40° as possible, and every chance taken to render the air about the plants dry. When frost actually does come, no further care than protection from its embraces will then be required. Plants so hardened, may stay covered up for weeks, without any light or air, and secure from the slightest injury. Mice constitute the most troublesome enemy in a pit closed for any length of time; but we have as yet found nothing better than the recommendation given in back volumes, namely, to take peas and soak them twenty-four hours in water, then roll in arsenic and sow in a pot, as if in the regular way of seed sowing. A few pots so prepared, should be placed in the pit before permanently closing up. The mice usually find these pots at their first entrance to the pits. If placed on the soil, they seem to guess your secret, and will not "bite."

Plants in cellars need much the same care as those in pits. Avoid heat and dampness; frequently however, plants suffer through getting too dry. They should be looked over, at any rate, once a month, and a little water given, if likely to become entirely dry.

Plants in windows and rooms usually suffer from excessive waterings,—very dry air about them,—too great a heat, or too much shade. As much as possible, room plants should be selected for their indifference to these requirements. Succulents, such as Cactuses, Mesembryanthemums, Rocheas, Crassulas, Aloes, &c., care not how dry the room, but they demand all the sunlight possible. Camellias, Chinese Primroses, Azaleas, Dicentra spectabilis, Polyanthus, Violets, Hyacinths, etc., do not mind a little shade; but they abhor a high temperature. Others again, while disliking heat, want light;

of these are Calceolarias, Cinerarias, Geraniums, Pelargoniums, Pansies, Daisies, Tree Carnations, perpetual blooming Pinks, Roses, and the like.

"Leaf plants," for the most part, like a close, moist atmosphere, and a moderate degree of heat to do well. For these glass partitions and closely glazed cases are usually employed. A great error in the growth of the plants in these cases, is to suppose they require no air. The closeness is to secure a moist atmosphere, not to exclude the air. Whenever, therefore, the temperature is low, and little evaporation going on, the opportunity should be seized to air the cases; a few moments are sufficient. A very pretty plant arrangement may be made in parlors that have bay windows; the whole window may be closed off from the main part of the room by a sash, and filled with plants. Some on the floor,—some on shelves, and some pendant from the roof. A common oil lamp will be quite sufficient, with the usual window shutters, to keep out frost during the night or extra severe weather, while the regular day temperature of the room will suffice for that time. When the lamp is burning, provision should be made for the admission of fresh air from the room at the bottom

of the case, and for the exit of consumed air at the top of the case. This is best accomplished by a tube to and from the lamp.

It must, however, be remarked that the fumes of burning coal gas is highly injurious to vegetation, and any adaptation of heating by it will fail, unless provision be made to lead the fumes away. With this precaution, gas lights in towns and cities, where it can be had cheaply, would be very useful in heating small parlor plant cabinets.

To those who have larger plant cabinets or small conservatories, connections with heaters or hot water from kitchen ranges will suggest themselves. This is often done. The great error we have often noticed is, that the heat is led to the back only, when it should be continued right to the front or coldest part of the house. When heaters are employed, the oxygen of the air is usually defective; and, besides, the air is very dry and ungenial to healthy vegetation. Evaporating pans around the mouth of the air flues should be used in such cases,—syringing done at frequent intervals, and pure fresh air given whenever a warm out-door spell furnishes the opportunity.

COMMUNICATIONS.

LAWNS.

BY P. BARRY, ESQ.

(Read before the Geneva Horticultural Society, Sep. 15, 1870.)

THE LAWN.

The most important elements or materials of landscape gardening are trees and grass. With these, and I might say these alone, the hand of taste can make the most charming of rural scenes.

I propose this evening to offer a very few remarks, more by way of suggestion than otherwise, on grass—what in gardening phrase we call the lawn. A space of ground, of greater or less extent, adjoining the dwelling, kept short and smooth by constant cutting and rolling, so as to resemble velvet, or rather, as we tread on it the idea of velvet is suggested, and hence the expression "velvet lawn."

The reason why I have chosen this topic is that I regard it as having a most important bearing on the the progress and improvement of or-

namental gardening in this country. Indeed, I think I would not overstate its importance if I should say that it is the very foundation of the edifice.

BEAUTY OF THE LAWN.

I need not consume your time by expatiating on the beauty of a well kept lawn, apart from all its adjuncts or ornaments. You who have seen good examples will agree with me that no other production of gardening art on the surface of the earth gives more real pleasure.

Young and old, rich and poor, learned and unlearned, will stop to admire and utter exclamations of wonder and delight at the sight of a beautiful lawn, and it is one of those things so agreeable to the eye, that it may be said we never weary looking at it.

Beautiful trees, plants, flowers and fruits elicit our admiration, and may even excite surprise and wonder by their magnificence, but these sensations soon pass off. The sight of the lawn

in its smooth, soft, fresh, enameled green, awakens sensations of satisfaction and delight which linger in our memory.

During my recent travels in California, this idea was brought to my mind with peculiar force. We visited gardens filled with rare and beautiful trees and gorgeous flowers that called forth our admiration. We saw natural scenery whose sublimity awed us, and we saw giant trees of the forest whose prodigious magnitude amazed us, but we saw pieces of lawn that made us all exclaim "how beautiful!" and we would revert to it time and again, and say "how beautiful." It is true that in a country like California, where rain does not fall for six months, and all herbage is dried and withered, a green spot is more remarkable, and doubtless more highly appreciated than it is in a climate like ours; but a fine lawn is one of those things that are everywhere and under all circumstances pleasing and delightful to the eye, and that even to the eye of uncultivated taste.

Downing, the most eloquent and appreciative of all American writers on such subjects, says, "with a lawn and trees one has indeed the most enduring sources of beauty in a country residence. Perpetual neatness, freshness and verdure in the one; ever expanding beauty, variety and grandeur in the other. What more does a reasonable man desire of the beautiful around him in the country? Must we add flowers, exotic plants, fruits? Perhaps so, but they are all, in an ornamental light, secondary to trees and grass, where these can be had in perfection."

"Without this feature, the lawn," the same writer adds, "no place, however great its architectural beauties, its charms of scenery, or its collection of flowers and shrubs, can be said to deserve consideration in point of landscape gardening; and with it, the humble cottage grounds will possess a charm, which is, among pleasure grounds, what a refined and graceful manner is in society—a universal passport to admiration."

We all know and feel the truth and force of these remarks of the great author and artist.

ITS BENEFICIAL INFLUENCE ON TASTE.

I have said that I regarded the lawn as having an important bearing on gardening improvement, and for this reason. I observe that where people succeed in making a piece of lawn around their dwelling, their gardening taste improves rapidly; disagreeable objects become more so in contrast with the smooth grass and must be re-

moved, some choice trees and shrubs are added, perhaps a vase or basket or bed of flowers,—one object of taste suggests another and another, and thus we make real progress. I see much of this change going on in our own city of Rochester. All around our streets I see charming bits of grass with brilliant beds and vases of flowers, where a few years ago there was a tangled unsightly mixture of fruit and shade trees, flowers, long grass and weeds. This change has added immensely to the beauty of our city, and has doubtless added largely to the comfort and enjoyment of the owners as well as to the money value of their property.

This reform has been aided very much recently: 1st by the introduction of lawn games, such as croquet, which contribute so much to the pleasure of home life both in city and country, during the summer season. A piece of smooth lawn is indispensable to the enjoyment of these games.

2d The introduction of the Hand Lawn Mower. I should think 150 of these machines were sold in Rochester last spring. One house alone sold 100. Yet five years ago, I might say less, outside of some half a dozen places there was not a square rod of lawn about the city, and not more than two or three mowing machines of any sort. These horse and hand mowers have happily removed one of the greatest obstacles in the way of keeping a lawn in good order at a small expense.

To know how to cut short grass was a qualification confined to professional gardeners, and only a few of them could do it well. Besides, it was expensive. It formerly required one man all the time and frequently two to mow one lawn, which we now cut in about half a day, once a week, with a man and horse, and do it infinitely better. The mowing of the lawn is therefore no longer a terror, and there is no other difficulty that I know of worthy of mention.

The cultivation of flowers in beds on lawns, as now practised, is much more satisfactory than the old way of scattering them around the garden, and has really given a great impetus to floriculture.

There is no other place where a fine tree or shrub, or bed of flowers, appears to such advantage or gives so much pleasure as when planted on a smooth, well-kept lawn. The grass to them is like the background in a painting,—the frame to a picture or the setting of a diamond.

Now then, for these reasons, and many more which might be urged, let us do something, if we can, to encourage the growth of this charming feature of modern gardening. The members of this society, individually and collectively, can all aid, if they will, both by precept and example.

LAWNS FOR THE FARM DWELLINGS.

I desire to see every one who has a garden, if not more than a quarter of an acre, devote a portion of it to a lawn. I know of no other way in which people are so likely to get the value of their money. It is a cheap luxury, and I do not wish to see it confined to cities and villages and their suburbs. It must extend into the country, the farming districts. Why should not every farm-house, in our old and rich farming districts in Western New York, have its broad and beautiful lawn around it? Are farmers and their families, and the friends who visit them, incapable of enjoying its beauties? No. There are no more enthusiastic admirers of a fine lawn or a beautiful garden scene than country people.

But it may be said that farmer's homes are surrounded by green fields, and they have no need of lawns.

This is not true. A smooth and closely cut lawn is no less capable of yielding enjoyment in the country and to the farmer's family than in the city or village; and nowhere does it appear to better advantage than when placed in contrast to farm crops, pastures and meadows. Often this summer have I seen farmers' families endeavoring to enjoy the favorite game, croquet, on rough ground among tall weeds, as if they were intending a burlesque. In all such cases I felt quite like lecturing the good farmer on the lawn. If it were not an expensive thing, requiring much hard labor, I should hesitate to recommend it to farmers in this country, where labor is so scarce and dear, and fast becoming more so; but as nearly the whole work of making and keeping a lawn can be performed with horses, and as there is always spare horse labor on the farm, I have no scruples on that score.

Then let us push this reform into the country. There it is most needed. Only think of the change that would be wrought in the aspect of our farm districts, if the gardens and dooryards which are now filled with a mixture of fruit and shade trees, weeds, grass and rubbish, were converted into a smooth lawn and planted with a few well chosen trees and shrubs! What a source of comfort and delight to the farmers and

their families and those who pass by them! And how largely it would add to their money value, besides being a band of love binding families to their homes. On this last point much might be said; although I mention it last, it is by no means the least in importance. Farmers! do more to make your homes attractive to your families, and thus you will cultivate and strengthen the love of home, which is one of the charms of life, and without which men and women are little better than wandering Arabs.

The nurserymen of the country, and especially such as those of Geneva, with extensive grounds and ample resources, can do much to educate the taste of people in the surrounding country and stimulate them to improvement. Their grounds may not only be schools of trees and plants, but schools of rural taste and design.

The city parks now springing up everywhere will also exercise much influence on public taste.

Our sister city, Buffalo, commences her park this fall; we, in Rochester, have thus far only talked about it. The difficulty with us seems to be that we have so many excellent sites for a public park that we cannot determine which is the best.

HOW TO MAKE A LAWN.

Now in regard to the making and keeping of a lawn, I will only state the principal points:

1st. The ground should be dry—that is, entirely free from stagnant water. 2d. It must be thoroughly deepened by trenching or trench ploughing to the depth of 18 to 24 inches. This deep working is of the highest importance, as without it the grass will not be able to resist the effects of dry periods which occur almost every summer. A week of hot, dry summer weather will be sufficient to dry up the grass on a thin soil, whilst on a deep, well prepared soil, a whole month of drouth will fail to destroy the verdure. We have all seen frequent illustrations of this. This deepening of the soil will not only insure the safety of the grass in dry weather, but will promote the growth of all trees, shrubs and plants that may be used in planting it. The depth, whatever it may be, should be uniform, for if it be deeper in some places than in others, the deep places will settle and make the ground uneven.

3. Evenness of surface is of great importance. I do not mean level, for an undulating surface is quite as desirable for a lawn as a level one; but whether level or undulating it must be smooth

and free from even the smallest stones, as these interfere with the operations of the mowing machine.

The operations of draining, deepening, leveling and removing the stones, are all well understood, and need no further comment.

What is the best grass for a lawn? is a question frequently asked. My answer usually is Red Top, and about 4 or 5 bushels, 50 or 60 pounds, to the acre. The smaller quantity will be sufficient if the seed be clear and good, which it seldom is. Some people recommend white clover, say one-fourth, to be mixed with the Red Top, and this does very well, but I prefer the pure Red Top.

What is the best time for seeding a lawn? Early in the spring, at the first moment the ground will bear working. All preparatory work on the ground should be performed in the fall, so that during winter it may settle, and any defects that may be developed can be corrected before sowing. In the spring, at the fitting moment, give a light plowing, a good harrowing, pick off the stones, sow the seed and give it a good rolling, which finishes the work. Small pieces of lawn where expense is a minor matter, can be made better by using turf from an old sheep pasture or common, instead of seed. The annoyance of weeds which is sometimes experienced in newly seeded lawns, will thus be avoided. The preparation of ground for turf is just the same as for seed.

I ought to refer to the fact that many people think that oats or some grain should be sowed with the grass, but this is a great error. The result of this method usually is a meadow instead of a lawn.

By sowing early in the spring, you may have a respectable lawn by midsummer. Where turf is employed it should, if possible, be laid down in the fall.

CARE AND KEEPING OF A LAWN.

The keeping of a lawn consists chiefly in frequent and careful mowing and rolling. Our rule is to mow once a week—for a short time in the spring it is scarcely enough, and in dry midsummer weather less frequently might answer, but the adoption of a rule prevents its being overlooked in the hurry of other work.

We use one of Swift's mowers, which has a heavy roller attached. Where a hand mower is used without a roller, a roller should occasionally be used by itself. A lawn will not remain

perfectly smooth and firm on the surface for any great length of time without rolling.

In well prepared soils a lawn will not need anything in the way of manure for a long time. A rank growth of grass is not wanted, and manure should never be applied. When the growth of the grass becomes feeble from lack of nourishment give it a top dressing of compost, rotten turf from an old pasture mixed with stable manure, well decomposed until the whole is in a fine mold; then it should be screened before being put on the lawn to avoid the trouble of picking and raking off stones afterwards.

The idea has been quite prevalent in this country, that the American climate is too warm and dry in summer for lawns. Ample experience has proved this to be an error as regards the northern States, at least. We can now see as good lawns here as in England, whose lawns are proverbially beautiful.

It is true we have periods of heat and drouth very trying to them, and for a time depriving them of their fresh green color, but the first rain restores it like magic, and in small places an occasional watering will preserve their freshness in the driest seasons. Let it be well understood then, that the difficulty of climate is more in imagination than fact. As I have already stated, the most effectual way to guard against the effects of drouth is to deepen your soil. This places within reach a large reservoir of moisture when it is needed.

How to plant and ornament a lawn is a question I will not discuss at present. I feel no way uneasy about that. I am quite sure if the lawn is made, and made well, it will stand a good chance to be well planted. I wish to see the lawn made first, and the planting done afterwards. There is a great deal of planting done that amounts to nothing, for the want of a right start.

But we are making progress, rapid progress. There are those who assert that our horticultural progress is chiefly in fruit culture, which is prosecuted solely from motives of gain, and that the growth of our nurseries do not indicate a growth of horticultural taste. This is an error. Only think of the immense quantities of ornamental trees and plants sold from the nurseries, from one end of the land to the other. Think of the tons of flower seeds, bulbs, &c, disseminated by our seedsmen. The statement of the sales of some of these articles would seem fabulous; and yet we are told that horticultural

taste is not growing! What a mistake! I think, on the contrary, that taste of this kind, a real love of gardening, is being developed here more rapidly than in any other country in the world, and I anticipate such progress from this time forward as has never been witnessed before.

Our resources and facilities are wonderful, at the present time, when compared with twenty years ago.

The number, extent and completeness of our nursery and seed establishments offer everything that is new, rare, beautiful or excellent, from every part of the world.

The facilities for transportation, steamships, railroads, express companies, the mail bags! What more could we desire in these respects? I can order plants from Europe, and in a fortnight have them growing in my garden.

From the Atlantic to the Pacific is but a pleasant excursion of a few days, and the most delicate plants can be safely sent from ocean to ocean in as short a time as it formerly took between Buffalo and New York.

The frontier settler, far away from railroads, can supply all the wants of his garden through the post.

With these wonderful facilities, and from the evidence of growing taste we see all around us, we are warranted in predicting great progress. Our people move rapidly, and those of us who may live ten years hence, will witness great changes.

We are now far ahead of all other countries in fruit culture, and my belief is that the time is not far distant when we shall be equally in advance in ornamental horticulture.

Let us of Western New York, who enjoy so many advantages, do our best.

DESTROYING THE CURCULIO.

BY MISS A. G., READING, PA.

Hearing that several of our fruit loving citizens had tried, with success, the following plan to get rid of these pests, I send you a statement obtained from Mr. Bartram Conrad, who tried it for the protection of his plum trees. I have heard of four others who, by the same method, secured crops of plums; in two instances the trees were loaded with plums.

Put some hay into warm brine and soak it well, then spread it out and let it become nearly dry, so as to burn slowly; attach a wire basket to a pole, and press the hay firmly into it, when

it is well settled, pour common tar all over the top; on a still evening, (a cloudy one if possible,) when the fruit blossoms commence falling, set fire to the sides of the basket, and hold it up to the tree, so as to let smoke pass all through it; if there is a flame, pour on more tar, so as to produce a heavy dense smoke. Repeat this process just after the blossoms have fallen. After the smoke penetrates well, some of the Curculios fall dead, and if the smoke is very heavy, it kills them all. This can be ascertained by laying a cloth under the tree.

I was told by another person that the hay was put into buckets or pans and hung to the lowest limb near the centre of the tree. This might save time where there were many trees, and if all were smoked at once few could escape.

CEDAR OF LEBANON.

BY MR. J. JAY SMITH, GERMANTOWN, PHILA.

I believe your Journal said, some very few years ago, that I was the first to exhibit full ripe cones of the Cedar of Lebanon at the Horticultural Society in Philadelphia. Whether the first in America, I know not; I only wish to tell you that the same tree planted 34 years ago, is again in full bearing, and a beautiful object it is. Perhaps few of nature's productions exhibit more perfect beauty than a Cedar of Lebanon cone. Its form, solidity, with the elegance of the spray to which it is so firmly attached, cannot be surpassed. The whole is a model; and then the historical character that attaches to its biblical record. Why are they so few? Possibly they grow too slow for Americans, but a fine "Cedar" is an heirloom on any place, and I would advise more planting of them.

CLIMBING PLANTS.

BY PROF. W. J. BEAL.

(Concluded)

Ampelopsis quinquefolia climbs by tendrils like the grape-vine, but in addition has a way of holding fast to plain surfaces by means of little disks or cushions. These disks are apparently never developed without a contact with some object. A tendril which has not become attached to any body does not contract spirally; and in the course of a week or two shrinks into the finest thread, withers and drops off. An attached tendril, on the other hand, contracts spirally, and thus becomes highly elastic; so that when the

main foot-stalk is pulled, the strain is equally distributed to all the attached disks. During the following winter it ceases to live, but remains firmly attached to the stem and to the surface of attachment. The gain in strength and durability in a tendril after its attachment is something wonderful. They adhere still strong after an exposure to the weather for fourteen or fifteen years. One single lateral branchlet of a tendril, estimated to be at least ten years old, was still elastic and supported a weight of exactly two pounds. This tendril had five disk-bearing branches of equal thickness and of apparently equal strength, so that this one tendril, after having been exposed during ten years to the weather, would have resisted a strain of ten pounds.

Spiral Contractions.—Tendrils of many kinds of plants if they catch nothing, contract after an interval of several days or weeks into a close spire. A few contract into a helix.

The spiral contraction which ensues after a tendril has caught a support is of high service to all tendril-bearing plants; hence its almost universal occurrence with plants of widely different orders. When caught, the spiral contraction drags up the shoot. Thus there is no waste of growth, and the stretched stem ascends by the shortest course. A far more important service rendered by the spiral contraction is that the tendrils are thus made highly elastic. The strain, as in *Ampelopsis*, is thus equally distributed to the several attached branches of a branched tendril. It is this elasticity which saves both branched and simple tendrils from being torn away during stormy weather. In one case observed, the *Bryony* safely rode out the gale, like a ship with two anchors down, and with a long range of cable ahead to serve as a spring as she surges to the storm. When an uncaught tendril contracts spirally the spire always runs in the same direction from tip to base. A tendril, on the other hand, which has caught a support by its extremity, invariably becomes twisted in one part in one direction, and in another part in the opposite direction; the oppositely turned spires being separated by short, straight portions.

Sometimes the spires of a tendril alternately turn as many as five times in opposite directions with straight portions between them; even seven or eight have been seen by M. Leon. Whether few spires, or many, there are as many in one direction as in the other. To give an illustra-

tion: when a haberdasher winds up ribbon for a customer he does not wind it into a single coil; for if he did, the ribbon would twist itself as many times as there were coils; but he winds it into a figure of eight on his thumb and little finger, so that he alternately takes turns in opposite directions, and thus the ribbon is not twisted. So it is with tendrils, with this sole difference, that they take several consecutive turns in one direction, and then the same number in an opposite direction; but in both cases the self-twisting is equally avoided. *Passiflora gracilis* has the most sensitive tendrils which were seen; a bit of platina wire, one-fiftieth of a grain in weight, gently placed on the concave point, caused two tendrils to become hooked. After a touch the tendril began to move in twenty-five seconds. Dr. Asa Gray saw tendrils of *Sicyos* move in thirty seconds. Other tendrils move in a few minutes; in the *Dicentra* in half an hour; in the *Smilax* in an hour and a quarter; and in the *Ampelopsis* still more slowly. Tendrils move to the touch of almost any substance, drops of water excepted. Adjoining tendrils rarely catch each other. Some tendrils have their revolving motion accelerated and retarded in moving to and from the light; others are indifferent to its action. America, which so abounds with arboreal animals, abounds with climbing plants; and, of the tendril-bearing plants examined, the most admirably constructed come from this grand continent, namely, the several species of *Bignonia*, *Eccremocarpus*, *Cobaea*, and *Ampelopsis*.

Root Climbers.—*Ficus repens* climbs up walls just like ivy; when the young rootlets were made to press lightly on slips of glass they emitted, after about a week's interval, minute drops of clear fluid, slightly viscid. One small drop the size of half a pin's head, was mixed with grains of sand. The slip of glass was left exposed in a drawer during hot and dry weather. The mass remained fluid during one hundred and twenty-eight days; how much longer was not observed. The roots seem to first secrete a slightly viscid fluid and then absorb the watery plants, and ultimately leave a cement.

Plants become climbers in order, it may be presumed, to reach the light, and to expose a large surface of leaves to its action and to that of the free air. This is effected by climbers with wonderfully little expenditure of organized matter, in comparison with trees, which have to support a load of heavy branches by a massive

HONEYSUCKLES.

BY J. M.

trunk. Because these climbing plants graduate into each other they have "become" climbers by gradual changes. This looks too much like the old fanciful theory that has again and again appeared, namely, the giraffe acquired his long neck by a constant desire for high twigs, and an effort to reach them; the elephant his long trunk by a similar desire and effort to reach the grass at his feet. We cannot see how homology indicates descent. We do not believe because the various modes of inflorescence run into each other (*homologous*), that they have all been derived from one common form. Mr. Darwin believes that leaf-climbers were primordially twiners and tendril-bearers were primordially leaf-climbers; and thinks he understands how the change has been brought about; yet he says "if we inquire how the petiole of a leaf, or the peduncle of a flower, or a branch first becomes sensitive, and acquires the power of bending towards the touched side, we get no certain answer." We are again silenced if we inquire how the stems, petioles, tendrils and flower peduncles first acquired their power of spontaneously revolving. Below we give a good sample of Darwinism.

"If these views be correct, *Lathyrus nissolia* must be descended from a primordial spirally-twining plant; that this became a leaf climber; that first, part of the leaf, and then the whole leaf became converted into a tendril, with the size; that this tendril lost its branches and became simple, then lost its revolving power (in which state it would resemble the tendril of the existing *L. aphaca*) and afterwards losing its prehensile power and becoming foliaceous, would no longer be called a tendril. In this last stage (that of the existing *L. nissolia*) the former tendril would re-assume its original function of a leaf, and its lately largely developed stipules being no longer wanted, would decrease in size." He believes that the capacity of acquiring the revolving power on which most climbers depend is inherent, though undeveloped, in almost every plant in the vegetable kingdom. Notwithstanding his peculiar views, which are so enticing to many, we must acknowledge that he is a shrewd and accurate observer, and that in this paper, as in many others, he has patiently collected a vast amount of valuable information upon a great variety of subjects.

[As we have before stated, we are indebted to the *American Naturalist* for this highly interesting paper. — Ed.]

DRYNESS OF SOIL AN AID TO THE RIPENING OF WOOD IN TREES, PLANTS, &c.

BY J. M.

Gardeners are sometimes inconvenienced when engaged in in-door grape growing, by the length of time the vine retains its leaves. As the cold nights of the autumn approach, they become uneasy about their greenhouse plants plunged out of doors, and find their grape vines, with many leaves yet green on them, very much in the way. The process of ripening may be advanced by withholding a greater part of the water usually given them, for some weeks previous to their usual time of leaf shedding. When it is evident that all growth has stopped for the season, the quantity of water can be lessened and the vines be cleared of leaves and ready to stow away for the winter some weeks earlier than usual. Examples of this may be seen in trees. In the front of my house stands a row of Silver Maples, and in the rear near a well, another tree; those in front having been without rain for a long time, have strewn the ground with their leaves, whilst from the one near the well, with its roots in partial contact with the water, not a leaf has yet fallen. With trees or shrubs not entirely hardy,

a wet situation favoring late growth would place the question of its injury by frost beyond a doubt in the affirmative.

[We doubt the conclusion of our correspondent, although we know it is the general opinion. If a tree grow late from diseases—say for instance a tree lose its leaves by fungus and then make a second growth, such unripe wood will suffer. But in a healthy tree, that one will get through the winter best which retains its leaves the longest.

The interesting note in reference to grape vines, refers of course to those cases in which plants and grape vines are grown together in the same house.—ED.]

THE LAW OF FASCIATION AND ITS RELATION TO SEX IN PLANTS.

BY THOMAS MEEHAN, GERMANTOWN, PA.

Read before the American Association for the Advancement of Science, at Troy, N. Y., August 19th, 1870.

At the last meeting of the Association, Dr. Sterry Hunt handed me a fasciated branch of *Picea balsamea*, in which the branchlets of the fascicle presented a very distinct appearance from the normal form. In the language of the person who directed Dr. Hunt's attention to it, it seemed as if a Norway Spruce was being developed from the Balsam Fir. From facts I had previously observed and embodied in my paper on *Adnation in Coniferae*, read at Chicago, it was clear that these branchlets did not possess the adnating power which I showed in that paper, to be characteristic of the highest vigor. The leaves were not distichous, but scattered around the weak stems, terete, and in every respect like those on plants in the young seedling state; and corresponding in this character with the free leaves in *Arborvitæ*, *Juniper* and similar plants, when the branches are forced to grow in shady places, or under other conditions unfavorable to perfect nutrition. I was astonished at the suggestion that fasciation could possibly be a weakness of development; because, though very little has been written about this phenomenon, all that I have read refers to over-nutrition as the probable cause. I believe I can now offer some facts which will show that there may be two distinct causes of fasciation,—one an abundant supply of nutrition, which consolidates together parts normally free, as we often see in asparagus, plantains, dandelions and other common things,—the other a weakened flow of vitality, which is not able to combine parts together,

which usually go to make up the integrate structure, and which then take the form known amongst the people generally as "Crow's nest branches."

That the last cause was probable in the case before me, I saw, as I have already stated. I found several specimens on living trees of Balsam Firs near me similar to the one given to me by Dr. Hunt, and watched them frequently. That they were weak developments, was clear from the fact that they made little more than an inch of growth every year,—that the leaves, usually of a dark green, were of a paler hue,—they were destroyed by the first frosts of autumn, becoming as deciduous as the larch, while the regular leaves continued evergreen,—and many of the fasciated shoots died during the course of the winter. The pale tint was evidence of defective nutrition, as it is well known to every practical gardener that when, from any cause, the fibres of a plant become injured, and the free supply of sap is from any cause, as by ringing the bark, cut off from the leaves, they become of a pale sickly hue. It was also evident from the inability of the fascicle to keep its leaf green, and some of its branchlets alive during winter, that vitality was at a low stage.

I examined the fasciated branches on other kinds of trees, and found these general results in all; but in none so well illustrated as in a sassafras tree which had nearly all of its branches in this condition, one of which I exhibit. Another tree was alongside of it quite free from this character. The one with the fasciated branches was not near as large as the other, although there appeared no reason in soil or other circumstances why it should not be. A great number of the branchlets in the fascicles also died out every winter.

I was very anxious to find how these fasciated branches would behave in a state of inflorescence, but could not find any case of one bearing flowers. At length I discovered them in the common blackberry, *Rubus villosus*, and was pleased to find that they not only confirmed the view I had taken of the cause of this kind of fasciation, but also furnished in the most unexpected manner, new facts in favor of my theory of last year respecting sex, namely: that the male is the offspring of a declining vitality. These fasciated branches in *Rubus* I am inclined to think common, and it will be very easy to verify the following facts: In these fasciated branches the number of branchlets varies from five to fifteen.

The pale tint characteristic of failing nutrition is particularly marked, while the lower leaves die away earlier than in those branches on the same cane produced in the regular way. That the whole of these leaves will fall first I anticipate, but cannot speak from actual knowledge. Here are perfect evidences of failure of nutrition, decreased vitality, and fasciation all going along together.

Now in its relation to sex. I pointed out in my paper on this subject last year, that the flower bearing parts of plants were weak in proportion as they diverged from the feminine condition. In a polygamous plant the pistillate flower is on the stoutest axis,—the hermaphrodite the next,—the male the weakest. So also in the grades of masculine weakness. When the male flowers had their stamens reduced to petals, the plant or axis of the plant was weaker than before; and when the sepals took on the character of leaves, or the leaves lost their chlorophyllous character and simulated petals, vitality was well known to horticulturists to be in a weaker state than in other cases.

Here are the same illustrations. As you see in this specimen, the lower branches, pushing in the usual way, have the regular calyx segments; but in the upper set of fasciated ones, the segments have taken on a leaf-like form, the stamens have increased in size, and the pistils, as shown by the great number in some flowers which have failed to swell out their ovaries, are proportionately defective. A tendency to masculinity is clearly in connection with defective nutrition, decreased vitality and fasciation.

I saw this, however, still more clearly demonstrated in a field of a cultivated variety of blackberry—the Wilson's Early, on the farm of Mr. Wm. Parry of Cinnaminson, New Jersey. His son Levi, an intelligent and observing young man, called my attention to the fact that wherever these fascicles occurred the flowers were nearly double, and no fruit followed. I found this to be the case so far as the flowers were concerned. In some there were as many as twenty petals, and the calycine segments were largely foliaceous. There could not be clearer illustrations of masculinity and fasciation going along together.

Returning to fasciations of the "Crows nest" kind, we may then safely say that they are bundles of branches formed from germs, which, if nutrition had been sufficient to provide the required vitality, would have adnated together and

formed one vigorous united axis, instead of as now, each struggling on in its own weak way. I am aware that this conclusion may conflict with received theories as to the formation of axis or stem. It would seem to imply that one perfect branch is but a collection of smaller homogenous ones. I sometimes see cases which indicate that this may be so. I have here a portion of a cane of *Rubus occidentalis*. At the base it is no thicker than the average of other canes; but near the middle of its length, it has separated into four smaller canes. It has been usual to regard these cases as the result of an easily and accidental union of several points; but in this case there is no increase in bulk,—nothing but clear assumption to warrant any such a theory. On the contrary, every appearance suggests not that the union of branches is the accident; but that that is the normal condition; and that it is the division into the fasciated branchlets which is the departure from the rule.

I do not, however, wish to ask for this suggestion anything more than it may be worth. Others more able than I, can interpret the circumstances. The main object I have had in this paper, is to show that all the circumstances which accompany fasciation, are those connected with a low stage of vitality. On this I think there can be no mistake.

[At the conclusion of the reading, Mr. Meehan said that as he had already observed in the paper, he had not been able to find fasciated bunches with flowers, except in *Rubus*, so as to draw many facts from sex as to the causes of fasciation. But while with the excursion of the Society to Albany the day before, he had found a plant of *Atriplex rosea* with a fasciated branch. He exhibited this specimen, and showed that it had eight branchlets from the fascicle and all had male flowers only, while each of the other branches of the plant bore male and female flowers, separate, and according to the law he had already pointed out in his paper on sex, namely with the male flowers on the weakest axes, and the female on the stronger ones.

Professor Gill, of the Smithsonian Institution, said he should be glad to know from Mr. Meehan how far he intended to carry his theory of sex? For himself, he thought it of very limited application, if at all true. He entered into embryological reasons to show that it was not true in the animal world.

Mr. Meehan said that in his paper, read last year, and in all his papers elsewhere, he had con-

lined himself to facts which he himself had observed and verified. If he were to go into the animal department of this subject, he should have to take other people's observations instead of his own, which would place him in the position of a defender of a theory rather than a simple presenter of facts. He considered, therefore, that for the purposes of such a discussion he might say he knew nothing of zoology, and must therefore decline to discuss it with Prof. Gill from that point of view. He had, however, studied it well in the botanical field and if any gentleman was not yet satisfied with the theory on the facts already presented, he was prepared to go further into it, either then or at any time. He repeated, that no instance had been brought to his notice which disproved his position,—where any evidence was afforded, it was always to show that the female flowers were always and only produced in the strongest lines of vitality or vigor.

Prof. Gill replied, that the specimens which Mr. Meehan had produced certainly did seem to admit of no other interpretation than what Mr. Meehan had put on them. Yet he thought that the principles of biology ought to be the same in the vegetable kingdom as in the animal; and he must repeat his opinion, that Mr. Meehan's theory was not sustained by the animal world.

NOTE ON MAGNOLIA GRANDIFLORA.

BY P. J. B., AUGUSTA, GA.

In 1861 I planted an avenue of Magnolia grandiflora, taking one year old seedling plants grown in pots. In 1866 a few trees commenced to bloom; the average height is now some 15 feet. Last year one of the trees produced a large crop of flowers in May and June, and another in the fall, commencing to show open flowers 15th of September, and continued to give an uninterrupted crop until the end of October. This year the tree is again producing its second crop, and from the present appearance there are buds enough in all stages of growth to promise a continuous bloom until November. Should the tree continue another year in this peculiarity, it would inaugurate a novel feature in this class of plants, and prove quite an acquisition to our collection of evergreen trees, as an everblooming Magnolia grandiflora would be as desirable as it is novel. Has any of the readers of the *Monthly* ever noticed a similar feature in M. grandiflora?

OLD AND USEFUL PLANTS.

BY B. R., PHILADA.

I am glad to see that the *Monthly*, while taking its hat off to the plants of new introduction, does not cut old acquaintances altogether. But there are a few old favorites which you have not noticed, that I remember, which I think should be generally grown.

BEGONIA EVANSIANA

Is one of these old things I have in my mind. Now this has been rather a dry time, and yet in the open air, growing in the flower borders, I have one which has been a mass of bloom from end of August till now, (1st of October). If there is no frost, I do think it will last till Christmas. It is a curious thing to propagate; for besides the little grains at the roots, bulbs come out in the bosoms of the leaves. I think it is hardy too, but of this I am not sure. When I was at school at Bethlehem, I remember that they came up through the myrtle [Periwinkle. —Ed.] that trailed about the College buildings; but no doubt they were a little bit protected by this leafy covering. I take up my roots, and after mixing with dirt, put the pot or box which contains them in a cellar away. In our old garden at home in Bucks Co., they went by the name of "Beefsteak" plant, from the leaf, which with some imagination looks like a piece of meat. Now-a-days they go as "Elephant's ears." Sometimes it is seen on the streets, where they call it "Begonia plant."

Another old thing I greatly admire is on the grounds of a neighbor, and which I have known since girlhood as the "Lead flower."

PLUMBAGO CAPENSIS.

My charming floral neighbor is a bush about two feet high, and has been a huge hillock of lilac flowers all summer, increasing the quantity till now. It seems an easy plant to keep, for they have only a cellar where they keep their Oranges and Oleanders, and this is taken up into a pot and goes in with them. It is a hard plant to raise I think, for I had slips given to me several times, but they never would grow for me. I think this plant is three years old, and everybody likes it.

Perhaps you will wonder at my taste, but I do like the Old Brown Day Lily.

HEMAROCALLIS FULVA.

We had a large patch in a waste place on our old homestead. I never think of it, but the first thing comes up in my mind is these

beautiful flowers. They never had anything done to them, but for all this had an immense number of pretty brown cups. It was like taking a reward for doing nothing; for we did nothing at all for them. They flowered also in summer when there were few other flowers. About the time the Pæonies went out these came in. Wherever I have been these many years since, I have always had a patch of them in the garden, and shall never tire of them. Indeed, home does not seem like home to me without them.

I was thinking to say a word for the

LILY OF THE VALLEY,

But I remember I was to write of neglected plants; but as nobody neglects them, it seems not to fit in here. However, I may say that it is a very good plant to set in the shade if nothing better is found to do there.

[We promised our correspondent to fill in the botanical names if she would write, which we have done. We are sure our readers would like more of the same sort.—Ed.]

NORFOLK ISLAND, OCEANICA.

BY MR. W. T. HARDING, FAIRMOUNT PARK.

Gladly accepting a passage which was kindly offered me from Moreton Bay to Norfolk Island, it gave me an opportunity of seeing, in their primeval condition, a grove of Araucaria excelsa or Norfolk Island pine. How else shall they be scribed than to pronounce them the most beautiful and majestic conifers I have ever seen. Probably many of your horticultural friends have seen handsome specimens under greenhouse protection, if not, visit Mr. R. Buist of this city, where may be seen A. excelsa, A. Bidwellii, A. Cookii, A. Brasiliana, A. imbricata and A. Cunninghamii. See them readers of the *Monthly* by all means, and you will be then able to form an opinion of what they would be in their native forests. Their noble appearance and symmetrical form, with their dark green branches, give to them a beautiful and pleasing aspect. As I wandered among them, admiring, wondering and meditating, I thought of the adventurous Captain Cook, that brave old mariner, and of the no less adventurous and enthusiastic botanist, Sir Joseph Banks, when they first landed from the good ship "Endeavor," on the spot over which I was then meandering. I thought, did they think then as I do now, and feel as I feel, grateful to Him whose providential care had safely borne them thus far to behold the glories of his creative power, who

had caused "to grow every tree that is pleasant to the sight." One noble old tree, whom ruthless time had not spared, as years counted on its lofty form, lay prostrate, uprooted by some violent gale, measuring in length 219 feet, circumference 35 feet. Where trees stood out singly and about 60 or 70 feet high, and well furnished to the ground with branches, they were objects of surpassing beauty.

Another fine tree, *Tristania albicans*, presented a most singular appearance as it supported a cluster of climbing plants, consisting of *Cissus antarctica* or gigantic vine, *Passiflora adiantifolia*, *Hardenbergia Comptoniana*, and a *Kennedya* with the foliage of *K. Marryattæ* and flowers like *K. heterophylla*, mixed with the finest conceivable masses of *Dendrobium elongatum*. Adjacent grew the strange looking grass trees, *Xanthorrhœa australis*, and *X. hastata*, *Callistemon viridiflora* and several kinds of *Acacias*, beneath which grew the pretty *Gaultheria antipoda*, which seemed to flourish there equally as well as in New Zealand.

Adieu, isolated and dreary Norfolk Island and its beautiful Pines, whose like I shall never see again.

HARDINESS OF PRUNED RASPBERRIES AND BLACKBERRIES.

BY W. P. P., ONARGA, ILLS.

In reply to the query raised in the September number of the *Monthly*, I would say that I have had growing in my grounds for some years, the Lawton Blackberry, the Purple Cane, Miami and Doolittle Raspberries. My experience with Blackberries and that class of berries, is that one cutting back or pinching in June or July, is beneficial in more ways than one, to wit:

1. It shortens the main canes, and greatly increases their size, consequently their capacity for self support.

2. It causes several vigorous branches to put out near the ground, all of which as a matter of fact, ripen up their wood earlier and more uniformly than the one main cane would have done had it been suffered to grow and lengthen itself without being cut back.

3. I have sometimes cut back the branches again in the month of August, but have finally discontinued that practice. I have found that the second cutting back serves to stimulate the growth of a new set of branchlets on the main branches, which do not have time to ripen their

wood before cold weather sets in. If they do not die during the winter, which they often do, they will be so damaged in bud and wood, that they will bear but little fruit, and that very small and poor in quality. It is moreover believed that this second cutting back in the fall gives a shade to the whole stool or bush, and lessens its capacity for fruit bearing the succeeding year.

4. I now allow the main branches to grow at will throughout the season. In the fall they droop and rest upon the ground; in this form they resist the drifting snow during the winter, and becomes a means of protecting the whole stool. Early in the spring, I cut back these main branches to within about one foot of the main stem or canes. As soon as growth commences, the whole bush puts out strong and vigorous fruit spurs at every bud, and the result of all is a crop of fruit that in point of size, quality and quantity astonishes all beholders.

5. Many attach much importance to the cutting out of the old wood as soon as the fruit is gathered. As a matter of mere taste, it is very pleasant to see them all cleaned out. But I am coming to regard them as the natural supports and protectors of the young and tender canes whilst they are maturing their wood and becoming self supporting. They also help to gather the drifting snow around the stool during the winter, an item of no small importance on the prairies, and I write for the prairies, latitude 40', Illinois.

6. I would add that the cutting back of the canes not only greatly increases the size, strength and hardness of the stems, but it keeps the bush so low and compact that it is much less exposed to severe winds, and much more accessible for the purposes of cultivation and of fruit gathering.

7. In conclusion I would observe that the foregoing remarks, so far as they relate to the Raspberry, have reference to those varieties that are propagated from the tips and that grow in stools, in distinction from those that spread and propagate from the root.

SKILFUL ARRANGEMENT OF TREES.

BY WALTER ELDER, LANDSCAPE GARDENER, PHILADELPHIA.

Rural improvers should consider how to best make their arboral arrangements, so as to give a pleasing and diversified scene all the year through. Study the statures and habits of the numerous species of trees, the hues, sizes and forms of their foliage. Then the different shades of verdure will contrast more beautifully in the seasons of growth; and the tints in the autumn will shine with greater splendor.

In the eastern and middle States, the native forest clumps and embellished pleasure grounds, are numerous enough and close enough to gild and beautify the landscape. It looks as if all the deciduous species combined, in the autumn months, to give a grand illumination of various colors, so as to make us enjoy and glorify our season of thanksgiving with greater zest.

The most numerous species show the "scar and yellow leaf;" but the red foliage of the Scarlet Oak, Sweet Gum and red Maple trees, shine like bright scarlet in the distance, and take off the sorrowful look of the yellows. The transparent crimson leaves of many Oaks, with the dim brown leaves of the Dogwoods on the outer margins, add greater weight and beauty to the scene, as *bass* and *tenor* give greater strength and melody to the music. Each tree is a gem, and every good arboral arrangement is a *finished picture*, freshly painted and gilded by the hand of the most high. Art may imitate, but can never equal the original handiwork of the Master.

How splendidly noble do our tree clad mountains and lofty river banks look as they rise in their majestic grandeur far above the levels of the plains and waters, and there better display the various hues and colors of their arboral garments; how lovely are the blossoms in spring, how beautiful the variegated verdure during the summer, how gloriously gilded are the tints of autumn, how blessed are we who can feast upon the beauties and fragrance of the trees, and enjoy the pleasures and comforts of their shelter and shade. How desolate and bleak would the world be without its garnishments of trees.

WINTERING APPLES.

BY MR. JOHN G. KREIDER, LANCASTER, PA.

These should be carefully hand-picked to prevent bruising. Light ladders should be provided, and great care taken to not to bruise the trees in picking as often happens. The time of picking depends much on the varieties and climate; but the usual time is from the middle of October to the twentieth of November. In picking, a very good implement for that purpose is a two pronged hay pitch fork, stuck into the mouth of a bag that will hold one peck. This comes very handy to pick those that can not be reached by hand; and what can be reached, can be picked in a basket, which is the most perfect way. For keeping over winter, if in small quantities, they may be put in a room where the tempera-

ture will not fall below 40, nor rise above 50 degrees. They should be examined at least every week, so that if it should have happened that a few were bruised in picking, they would early decay, and they should be picked out before they would affect any of the rest. By this way, I have kept small quantities of apples until the new crop was ready to be harvested. But if you have apples in large quantities, put them in a heap of ten to fifteen bushels, and cover them with rye straw to the depth of one and a half feet, covering the straw with earth to the depth of two to three inches, except, at the top a small hole should be left for ventilation or they would decay. A dry spot should be chosen for making the heap; and before severe frost comes, cover your heap altogether with more earth.

EDITORIAL.

ABOUT WATERING.

"How often shall I water my plants?" asks the purchaser of a small bill at the nursery. In window gardening the water question is also one of the anxious ones,—and even in the regular operations of gardening, under the treatment of quite practiced hands, the relations of water to plant life is not as clear as it might be.

We shall understand better how to water if we correct first some impressions derived from old works on physiology. It is said that plants want *water*. This is not strictly true. Water is found in plants, but it enters rather in the shape of *vapor*. A soil that is wet will grow only water plants; and it is a remarkable fact that these water plants seem to have very little water in them. A reed or bulrush grown in water has far less water in its structure than a nearly allied species grown on the dry land. The plants which have most fluid matter in them are those grown in the driest places. The deserts of Africa abound in Euphorbias; while on the plains of Mexico the only moisture wild cattle can often get is from the large spiny Globe Cactuses, which they manage to cleave open with their hooves.

A wet soil is totally unfit for plant growing. A plant standing twenty four hours in water is

often irreparably injured. A Hyacinth, to be sure, will live one season in water; but all the matter which goes to make up the flower is prepared the year before, and after flowering the bulb is exhausted and almost worthless.

A good soil for plant growing, therefore, is not one which will hold water; but one in which water will rapidly pass away.

The soil itself is composed of minute particles, through which air spaces abound. The water must be just enough to keep these particles moist, and the air in the spaces is thus kept in the condition of *moist air*. The roots traverse these air spaces, and it is therefore moist air which roots want, and not water.

If it were water simply which plants wanted, we should cork up the bottom of the hole in the flower pot, and prevent the water getting away. Instead of this we try to hasten the passing of the water through as much as possible; by not only keeping the hole as clear as possible, but often by putting pieces of broken material over the hole.

A plant will generally be the healthiest therefore, which wants water the oftenest. This will show that there are plenty of air spaces, and that the roots are making good use of them.

If it does not often want water it is in a bad way, and more water will make it worse.

How often to water them will be according to how easy the water passes away. If when you pour water on earth it disappears almost instantaneously, it would be safe to water such plants every day.

And now for open air work. We often hear good men say about a piece of ground rather low, that it is wet in the winter to be sure, but a few open ditches in winter to carry off the water will make all things right. But water in winter does not hurt things much. It is water in summer, —water while plants are growing which hurts them. And the reason why land is wet in winter, is because the conditions are such that water cannot pass rapidly away, and such land is of course the same in summer. Every shower takes several days to soak away, in the meantime the plants suffer.

So the constant aim of the cultivator, whether of plants in pots or things in the open ground, should be to make water always pass rapidly away, and yet to have the soil of such consistency that a moist atmosphere should be always present in the air spaces existing through it.

In its relation to moisture, we might say a little about the consistence of the soil. If the earth for instance were composed of all sand, there would be little moisture except in the air spaces. The particles of flint of which sand is composed are not capable of absorbing moisture, any more than we can get water to soak through a glass bottle. For moisture retaining purposes, therefore, sand is useless. But it is useful sometimes to add sand to clayey soils which otherwise would lie so close that there would be no air spaces. It indeed helps to make air spaces, and has no other use.

TRAVELING RECOLLECTIONS.

To see the beauty of the Hudson River country, one should use the steamers to or from Albany or Troy. The beautiful residences for which the banks of the river are famous, are chiefly on the east side, and as the Hudson River R. R. follows that line, nothing of these garden beauties are seen. For the scenic interest by this R. R., the views along the Susquehanna, Schuylkill and the Lehigh are far superior to that of the Hudson River, except in the matter of life given to the river by the numerous boats that move upon its waters. The Palisades, the Islands, the Nar-

rows, the Catskills, are all, nevertheless, leading points of great beauty; but nothing especially interests a horticulturist until the upper Hudson districts are reached, when he is struck—at least one from the central or southern States is struck by the over-flowing abundance of Plums. Almost every one has a few trees which were being borne down by the weight of fruit, and those who had large orchards were rejoicing out of the fullness of their abundance. Also stopping at Troy, we were disappointed at finding so little horticultural taste there. Some few of the wealthy agriculturists away from the place a few miles, have some good gardens; but as for the city and suburbs, we saw less gardening here than in many a "one horse" western town. It may have been our misfortune in not finding the right places during our perambulations, or in not inquiring of the right parties,—certain it was, that we felt sorry that a people so hospitable and generous as we found them, should seemingly be deprived of some of the best pleasures of life, which gardening affords. In almost all markets we see some attempts at flower sales. At Troy there was an utter absence of all this. The markets were however supplied with vegetables in profusion, showing that the stomach, if not the finer senses, were abundantly ministered to. Besides the immense amount of onions and cucumbers, which always seems so strange to one coming up to the Northern States, there was a small kind of Lima Bean called the "Selah," which we had never seen before; but which we were told was in use six weeks before the common Lima; if this should be generally the case it ought to be better known everywhere. At Troy, we met our good friend Gregory, of Marblehead, who with a fondness for horticulture, and a high business reputation, unites a love of the natural sciences. He was the author of one of the most interesting papers on geology, read before the American Association, then assembled there; and he showed as much interest in this bean as in science. He told us it was a very old, and locally well known kind, but supposing it a mere substitute for something better, had given it little thought. But certainly if it will come into bearing six weeks or even a month before the Lima in other parts of the country, it is well worthy general cultivation.

The scenery around Troy is very inviting, and wishing to know more of the Plum success, we rode down to Lansingburg, a few miles out from Troy. Here Mr. S. B. Fancher has the mis-

sion of horticulture in charge; and the numerous pretty gardens and flower beds about the town, showed that he had had considerable success in his ministrations. His own place is a charming spot for one in a closely built up portion of a town. Many of the new coleus, geraniums and other rare flowers adorned the ground. Mr. F. is the inventor of a tile for garden edging, which seemed to us to be a very good thing. Usually these tiles are thrown over by frost, —and in the spring look anything but ornamental, being twisted in every direction. These have a large phlange underground, which is said to steady them. They are like pieces of T rail, but made of a cement. They are capable of much ornamentation; while their shape renders them easy to pack for transportation.

It is so rare that we have a good plum season in the best districts of Pennsylvania, that it was a good chance to get a renewed acquaintance with our old plum friends. Mr. F. kindly made out for us a list of the best varieties, which with a selection of some other fruits found by long experience to be best adapted to this region we append, in F.'s own terse yet graphic style:

Plums.—Coe's Golden Drop, Green Gage, Red Magnum Bonum, all do well here, and trees healthy—add *Lombard*. Jefferson rots badly, and tree short lived; General Hand, the very best large Plum, but I think the tree is tender.

Pears.—Bartlett, Duchess on quince, Louise Bonne de Jersey on quince, Seckel, Beurrd d'Anjou, Flemish Beauty, Winter Nelis, Buffums are best.

Grapes.—Allen's Hybrid, Israella, Concord; Rogers', mostly uncertain on account of a defective fertilization, but worth trying; Isabella for sheltered localities; Catawba, best of its class for sheltered localities.

Peaches in the ascendant,—done well.

Cherries.—Great Bigarreau, best of its class; tree very hardy.

Raspberries.—Franconia, Doolittle; good bye to the rest.

Strawberries.—Wilson; good bye to the rest.

Quinces.—Orange or Apple, "A No. 1."

Albany is the headquarters for horticulture in this section of New York. A party of us, including Mr. Riley of the *Entomologist*, and some other well known names, had fixed on a time to run down and pay our respects to the *Country Gentleman* and the other distinguished sons of

the soil who reside there; but on all assembling together for that purpose, it was found that the party could not return to Troy in time for some other positive engagements which had been made. We do not often write about what we do not see or do, but when we say little horticulture was to be seen about Troy, the reader who knows what Albany can show, would naturally wonder why we did not see that at any rate. We had the opportunity to spend a few hours in Albany examining the observatory, and the public library, expecting to return to Albany, as we have before said. The observatory is worthy of its great fame,—we wish we could say as much for the grounds. With so great natural advantage as the site has, it is a wonder that no effort is made by the citizens to make it famous for landscape beauty.

We accepted, with some other friends, an invitation from the generous citizens of Troy, to go up and see Saratoga. The site of the town is one of great beauty. The principal street is wide and beautifully shaded with magnificent trees, apparently half a century old. Some of the residences exhibit slight evidence of an existing taste for horticultural pursuits. The grounds of the "Congress Hall," several acres in extent, were indeed very pretty, well laid out, and kept in remarkably neat order. To our astonishment no one seemed to make any use of them. Thousands were lolling lazily around, and in the parlors of the hotels, borne down by the weight of jewelry, or dressed in the highest style of Parisian fashion,—spending their time in the most unmeaning frivolities, while the numerous beauties of nature about them were as so many pearls cast before swine. But we forget that Saratoga is the grand matrimonial market of the United States, and possibly these beautiful grounds have their purpose accomplished in "Walks by moonlight alone."

LIBOCEDRUS DECURRENS.

Is it possible that our English friends are not acquainted with the great merits of this beautiful tree. It seems almost impossible to get any of it true from there. An acquaintance sent there for a small stock last spring, and took especial pains to say, that he did not want *Thuja gigantea*, or any of the kinds sold for the *Libocedrus*, and describing exactly his wants. But the *Thuja* came. Of all the *Arborvitæ* family the *Libocedrus* is the handsomest.

SCRAPS AND QUERIES.

NAPOLÉON'S FLOWER.—The Violet is the emblematic flower of the Bonapartes, as the Lily is of the Bourbons. When Eugénie agreed to accept Napoleon's offer of marriage, she expressed it only by appearing one evening dressed in an exquisite violet toilet—violets in her hair, in her dress, even to a branch in her hand. Louis Napoleon understood, and it was his only answer. Napoleon while consul, selected this as his flower. It was through Josephine asking him to bring her a bouquet of them on her birthday—a desire he was only able to serve after very great difficulty. He cultivated them assiduously, while a prisoner at St. Helena; and they were profusely planted over the grave of Josephine. After his death, his coffin was covered with the humble flowers he loved. It is even said that in the earlier days of Louis Napoleon, he was silently made acquainted with who his secret friends were, by a cautious display of Violets.

DR. JACK'S FERN CABINET.—Mrs. E. B., of Allegheny Furnace, Pa., writes: that for two years she has been using the window case described in 1862, by Dr. Jack, and finds that she fails to secure the requisite degree of internal moisture. Has she the openings in the bottom fully twice as large as the surface of the ventilator at the top, to enable the free escape of cold air? Does she use rain water for the water vessel? In case spring water is supplied, the threads of the crochet covering become clogged with earthy matter to such a degree as to quickly lose their purpose.

Any large loose cotton thread or candle wick will answer for the webbing. The openings of the meshes should be nearly as large as the point of the small finger.

Dr. Jack informs us that he has the case described in our volume for 1862, still in very successful operation. It gives great pleasure to all who see it.

PARKS AND GARDENS OF EUROPE.—Mr. Robinson, author of this popular work, spent several days in Philadelphia, recently. He will be some months in this country. Mr. Robinson is one of those rare gentlemen who unite great intelligence with true modesty. We hope our friends will show him the attention which his unobtrusive manners might prevent his seeking.

ASIMINA TRILOBA.—The *Botanical Magazine* has a plate illustrating our common Papaw. It appears to be very rare in England. It is singular that a tree, which in the United States should be found northward almost to the lakes, and must often endure frost many degrees below zero, should need a wall to induce it to flower in England. It is, however, one of those plants which need a high long continued summer temperature to grow vigorously; which England has not. The account says:

"A rare and curious plant of the order Anonaceæ. It is a native of the banks of streams in the Middle, Southern and Western States of North America, where it forms a small tree fifteen to thirty feet high, flowering in March and April, and bearing in autumn a yellow, fragrant, fleshy, eatable fruit, called both "Custard Apple" and "Papaw" in the States (though equally widely different from the fruit of the Custard Apple proper, *Anona reticulata*, and of the true Papaw, *Carica Papaya*). "Asiminier" was the name applied to it by the early French colonists of America. "*Asimina triloba* was introduced into England by Peter Collinson in 1736, and probably old trees of it may still linger in botanic and other gardens." The tree at Kew, from which the present figure has been prepared, is trained against a wall, and flowered in June of the present year. We may, therefore, provisionally consider the North American Custard Apple as an addition to our list of hardy fruit."

HYBRID PENTSTEMONS.—These are said to have made wonderful strides in improvement the past year; so much so as to endanger the popularity of the zonale Pelargoniums or Geraniums for bedding purposes.

AN EVERBLOOMING CHRYSANTHEMUM.—A correspondent of the *London Gardener's Chronicle* says, at the Wimbledon House near London, the greatest novelty amongst the bedding plants was a dwarf-growing, white-flowered Chrysanthemum, which continues in bloom all through the season, and is largely used for bedding-out and pot-culture for the conservatory, for which latter purpose it is extremely useful at this season of the year, when such structures are generally less gay with flowers than at any other time.

DISEASE IN PEARS.—P., Onarga, Ills., says: "About one year ago, I received from a nursery in the State of New York, about 200 very fine and thrifty looking pear trees, two and three years old. They had made a growth of four and five feet during the summer. They were all cut back more or less, and a good many of them were set out carefully in the fall, and well mounded up; others were well headed in and set out in the spring. In the spring the heart in the wood of late year's growth in nearly all of them was black. Some twenty to thirty have died, and a large portion of the remainder have simply put out their leaves and remained stationary throughout the season, and this while under a high state of culture and the best of treatment in every way. I very seldom lose a tree that is in health, when I take it in hand. Now, can I hope ever to make healthy specimens out of these black hearted trees, or had I better dig them up and throw them away? I do not wish to waste time and labor on them if they are worthless. Please give me your opinion of such trees, and greatly oblige an interested reader."

[The disease which you have, is that known as "frozen sap blight;" but with which the frost has nothing whatever to do. As you correctly remark, the foundation of the disease is laid while the young wood is growing, as is clearly evidenced by the black pith when such wood is cut across. The following spring, black blotches appear on the surface of the bark, often destroying even five year old wood. Through the general acceptance of the "frozen sap" theory, without the slightest critical examination of the nature of the disease, nothing whatever is known of it. It is well worthy of the study of a scientific mind. We have known trees get over it by being cut almost down to the ground, so as to get an entirely new stem growth. We should be inclined to try this in your case.]

PARASITIC INSECTS.—J. K., West Milton. says: "In the September number of your *Monthly* you refer to an article by Prof. Russell, in the *Journal of Horticulture*, where he alludes to a species of fungus which destroys the larvæ of the Cockchafer. In connection with this subject, I find in an old volume of the *Cultivator*, published in 1840, (May No.) the statement, that "the larvæ of the *Melolontha* is one of the very few which have been distinguished by the name of vegetating insects, from their being found both before

and after death with shoots of some vegetable fungus issuing from them. In some districts of Pennsylvania, it is a common belief that these vegetable elongations change to blackberry bushes."

Now, friend Meehan, your humble correspondent, in the Spring of 1869, planted one acre to Kittatinny Blackberries, of which these same grubs, during the succeeding summer, maliciously ate clean a large portion. He has since been waiting patiently for further developments in the shape of fungus, i. e. blackberry bushes. Whether, or not, they will prove new varieties, remains to be seen. Meanwhile, he offers to supply nurserymen with these larvæ, in quantities to suit purchasers, and at reduced rates.

IRON AND MUSHROOMS.—Mr. Robinson says, in his recent work on Mushroom culture, that a single rusty nail in a Mushroom bed, will blast all hopes of a crop.

MEEHAN'S NURSERY.—Under this head we gave an extract recently from the *American Agriculturist*, in which the Editor of the *Gardener's Monthly* was complimented on "saying so little about his own nursery in his journal." The *Southern Planter* also extracts the paragraph and adds:

"We clip the above merely to say, what we have often felt, that Mr. Meehan is a model editor in this respect, as well as in many others. If he has 'axes to grind,' and doubtless he has many, he does it in the advertising and not the editorial pages of his journal. This is a vast deal more than can be said for many other magazines we see."

We have endeavored to keep the *Monthly* clear of being made a machine for puffing any one's business; and to make it, what its projectors set out to do, a representative of horticulture only. We have no doubt others could edit it as ably, but none with more honesty to this purpose, and we are gratified that our endeavors in this course are appreciated by our contemporaries.

KAPNOPHYTE.—E. Whitley & Co., of Murfreesboro, N. C., have patented a plan for burning brush, straw, &c., by which all the material is returned to the soil, instead of being wasted as usual by burning in the open air. The process appears to us little besides the regular one for making charcoal, and we should suppose

scarcely patentable. However that may be, there can be no doubt that the earth impregnated with the gases from the burning material ought to make a rich fertilizer, and it is remarkable that this has not been in use before. The proprietors of this patent deserve success for this thought at any rate, whether there is much novelty in the process or not. The patent appears to have been granted, and they sell rights to use it.

JUDAS TREE HONEY.—W. H. H., Mo., says: "In answer to an inquiry in the August number of the *Gardener's Monthly*, as to whether or no the *Cercis canadensis* is detrimental to the honey bee. I have a very successful apiary, situated in the bottom, between a river and creek, where there is a great quantity of Redbud. I notice that bees like to work on it, and make a nice flavored honey while it is in bloom."

BRIEF NOTES.—We have been more than usually favored of late with brief notes of horticultural experience. We value these fully as much as the longer essays, which many subjects necessarily require. It takes less time, and many can note them in leisure moments. We hope our readers will continue on in this good work. To those who have favored us with these short notes, we return our best thanks.

OUR RELIGIOUS EXCHANGES.—Our publishers suggest to us, to say, that amongst the most anxious of the press of the country to exchange with us, are the religious newspapers. We have a large list of them. Ours being a horticultural journal, we can seldom make any use of these exchanges for our pages; except, perhaps in the way of lessons of brotherly love which we ought to find, but too often do not in their pages. But the courtesy is very rarely acknowledged by them. This makes two notices which we have recently read, the more agreeable to us. One is from *Arc Maria*, a Roman Catholic magazine of Indiana,—the other from the *Liberal Christian*, Unitarian of New York. The latter is particularly flattering. It thinks our plates equal to the best productions of Europe. We hope to still further improve in these as our artist gets his "hand in." We also acknowledge the compliment of the *Episcopalian* of Philadelphia, which always notices at least the receipt of our magazine.

DISEASE IN TULIP TREES.—D. W., Englewood, N. J., writes: "I have a *Liriodendron* on my lawn, which for two summers has been smitten, early in July, with some sort of disease. Dark spots appear on the leaves. These spots spread until the leaves are blackened and fall off toward the first of August. The tree loses about two-thirds of its leaves; the trunk looks healthy; its growth is good. Two other *Liriodendrons* near by are not afflicted. The microscope shows no protruberance on the leaves, but the spots seem sunken into the fibre of the leaves, hence I infer the spots are not caused by flies or beetles. Is it some species of fungus, think you; if not, can you tell me what it is and how to cure a noble young tree?"

[We have not seen anything of the kind,—probably it is one of those transient fungi which infest, more or less, all trees at times.]

APPLES FROM DENTON, MD.—J. W. K., sends us an Apple for name. We do not recognize it as anything we know, so as to speak with certainty. We submitted it to three others who are excellent authorities, and have three different names "positively" given to it. So we have not found any help in our own doubts about it. It may be a new seedling, as your friend suggests, but would not like to say for certain. It is a good thing.

THE ALVEY GRAPE IN VIRGINIA.—A *Fredricksburg Correspondent* says: "We have been without rain since latter part of June, and vegetation is almost gone. My garden is a waste, and the grass would burn on application of the torch. The grapes in my sandy soil shriveled, and very imperfect in flavor, with the exception of my favorite, the Alvey, which holds its own in all seasons."

GRAPES ON A BACK WALL.—H., Springfield, Ills., says: "I have a lean-to cold grapery facing East which always does well, but the vines of the front row now shade those of the back row so much that that they do not bear well, and in fact are doing no good, and I intend to take them up. I am uncertain as to what I ought to put in their place, whether figs, apricots, &c; and I will be thankful for your advice on this subject."

[We have never known grapes do well on a back wall, even when not shaded much. We

suppose the tops of the vine rob the lower of some of its nutriment, and hence the lower portions are not organized for reproduction. Such vines do best when trained laterally,—that is arms led along from the main stem of the vine, instead of upright. Nectarines often do tolerably well on a back wall; but all these should be trained laterally, or at least fan shaped.

GARDENING IN MICHIGAN.—The *Kalamazoo Telegraph* says that all over that county there is an increased attention given to gardening, and very kindly couples this increase of taste with the *Gardener's Monthly*.

We have no doubt that the *Gardener's Monthly* in its turn owes much of its success to the numerous excellent agricultural journals, some one or another of which everybody takes. The seeds of gardening are really sown by them. The *Gardener's Monthly* merely takes the little plant in hand where they leave off. With the *Gardener's Monthly* in one hand, and a good agricultural paper in the other, the "country will be safe."

THE BOTANIST OF THE AGRICULTURAL DEPARTMENT.—Dr. C. C. Parry, who has been in Europe the past year, has just returned. All the collections of the Smithsonian Institution have been turned over to the department, and under the management of Dr. Parry. The United States will soon have a collection of which the nation will be proud.

WINE GROWING.—A "temperance man" takes us rather sharply to task for admitting Dr. Schröder's paper on Wine growing in a recent number. He thinks the *Gardener's Monthly* should be employed in the cause of "reform." We are aware that it is the custom now-a-days for Barnum exhibitions, circus shows, and Ethiopian minstrels, to advertise themselves as "highly religious and moral entertainments," and we no doubt might do a little in this "moral" way. But we rather prefer to stick to horticulture pure and simple, and let "reform" alone. We have our own ideas about this temperance question. We might go so far as to assent to the proposition that the world on the whole would be better if there had never been a drop of liquor in it. But that is "neither here nor there." The point between Dr. Schröder and "temperance man," is that the Dr. finds a whisky soaked

specimen of humanity which "temperance man" has failed to make anything out of. He will drink this wretched stuff instead of listening to the pure water principles of "temperance man." If Dr. Schröder can now step in and make him substitute wine for his whiskey, what business is it of "temperance man's?" But this is not horticulture, and so we do not speak oracularly about it. We merely submit the question to our correspondent with all due respect.

INVITATIONS.—We have received with much pleasure invitations and tickets for "self and lady," to so many exhibitions and fairs through the country, that we have been unable to acknowledge them all severally. We hope the officers of these societies will accept in this general way our best thanks.

TREE CULTURE OF GRAPES.—A Danville correspondent says:

"You have 'hit the nail square' on tree culture of grapes. The grape crop fine here. Apple crop enormous. Grapes selling at Naples at 4 c. Dealers are afraid of apples at \$1.50 per barrel."

We will only say that we hope others will follow up this subject. The figures we gave as to the crops produced by the tree grapes of Italy, seem enormous. We do not vouch for their accuracy; but merely give what have been stated by writers, whose credit has not been attacked. Certainly the most marked success attends their tree practice.

WASH FOR TREES.—J. H., Jackson, Ky., asks: "I have a young pear orchard in which the white scale are making great ravages. I have seen potash solutions recommended, but do not know the proportions. The trees are almost white with the insect; what would advise me to do?" [Make them whiter. That is we should white-wash them. Mix powdered sulphur with the whitewash, and paint the stems; previously cutting away all the twiggy portions of the stems. We like this better than any potash mixtures, as it kills fungoid matters as well as insects.]

THE BOTANY OF CUBA AND TEXAS.—The *Houston Telegraph* has the following well merited notice of the labors of one of the most enthusiastic of living plant collectors. Mr. Wright is now, we believe, at the Botanical Gardens at Cambridge, Mass.:

As early as 1845-6, Prof. Charles Wright, a graduate of Yale College, then engaged in teaching at Ruterville, made a very extensive collection of the botanical productions of Texas; including hundreds of unclassified specimens. The Botanist at Cambridge paid Professor W. one thousand dollars for his collection.

Mr. Wright was connected as Botanist with the Commission that ran the boundary line between Texas and Mexico, and subsequently acted in the same capacity to the Japan expedition. He has spent several years in Botanical researches in Cuba, and when we last heard of him, he was at Cambridge, Mass., preparing for publication a Botanical report of the West India Islands. There is no man living so thoroughly qualified, from past labors and experience, as Professor Wright to prepare a Botany of Texas. He never married; is a thorough cosmopolitan, and could undoubtedly be induced to undertake the task.

PHYLOTAXIS.—This is the name of the branch of botanical science which determines the arrangement of the leaves along the stems. "Nature," an English journal, says:

"The Royal Society of Denmark offers a gold medal this year for the best series of observations of phyllotaxis and inflorescence, with particular regard to the question as to what part the terminal bud takes in the development of phanerogamic plants."

WILSON'S ALBANY STRAWBERRY IN THE SOUTH.—Some one recommending Barnes' Mammoth, as a substitute for Wilson, the Editor of *South Land* says:

"We don't desire any substitute for Wilson's Albany; and have little expectation of soon seeing a better market strawberry. Amateurs may try Barnes' Mammoth, on ground 'good and rich,' but we venture the assertion, that, on such ground, the Wilson will produce twice or three times as many berries as the Barnes' or any other variety, in this latitude."

NAMES OF PLANTS.—W. T., Kansas City, Mo.—*Funkia ivæfolia*. A. F. S., Moline, Ills.—*Cassia Chamæcrista*.

THE AMERICAN ENTOMOLOGIST.—In the early numbers of the *Gardener's Monthly*, we paid much attention to insects, but finding the *Entomologist* doing such excellent service, we have left it all to it. Now we are sorry to learn

that it has suspended. We happen to know, however, that this is chiefly owing to its Editor wishing to spend a year in Europe, and that when he returns, he intends to resume the pen, with all the "latest improvements." After all we expect science will be a gainer by the short delay. The *Entomologist* is not dead but sleepeth.

NUTRITION AND SEX IN PLANTS.—In the paper on this head, read by the Editor of this magazine before the American Association at Troy, speaking about the two classes of flowers in the common chestnut, occurs this paragraph:

"One class of male flowers comes out from the axils on half starved shoots, the other class terminates the strong, vigorous shoots which bear the female blossoms. Those of the former class have the flowers set densely on the rachis, on the latter they are somewhat scattered, and do not open until a week or ten days after the latter."

Copying the paper, the Editor of the *Prairie Farmer* says of this paragraph:

"Here is probably a mistake. We think the word 'latter,' as last used in the fourth sentence, should be stricken out and the word *former* inserted in its stead. This correction, if admitted, would convey the idea that the partially starved male blossoms were the first to appear.

We are much pleased with Mr. Meehan's observations of causes including defective bloom, as stated in this article. We think, in our own investigations of blooms of other trees, we have seen much of an analogous nature tending to confirm his views."

We return our best thanks for the correction of an error which it is singular we should have made.

THE WESTERN GARDENER.—We noticed the prospectus of this new horticultural journal. The first number was good; and it improves with every number.

THE RURAL NEW YORKER has added a "California Editor" to its regular staff. How many editors it takes to make a good paper will soon be a question. The *Rural* has always been a first-class weekly—if not on the top of the class in its special line of combining all things. It seems to have an idea that there is a class beyond the best, which it may finally reach if it tries. We can at least but admire the effort; however much we may pity the infatuation which attempts it.

NEW AND RARE FRUITS.

THE DETROIT GRAPE.—This new grape has a remarkably vigorous vine, and will, we believe, take a prominent position among the leading varieties. The fruit is of a medium size, with a rich Catawba color, only a shade darker; the clusters are compact and large, the flavor rich, having a sweetness similar the Delaware and a flavor peculiar to the Catawba. It ripens before the Isabella, and a little later than the Concord. The Detroit took premium No. 39, at the Grape Growers' Association, offered for the variety of recently introduced of greatest promise, competing with the Eumelan, Walter, Salem and other new kinds; also, two first premiums, in same Association, prior to this. Awarded a special premium at the Michigan State Fair, the examining committee making their report as follows.

"Your Committee recommend a special premium for the 'Detroit Grape,' considering it worthy of special notice as peculiarly adapted to our climate, having a delightful flavor and delicate taste. Your committee recommend it as worthy of the attention of all cultivators of the vine."—*Ohio Farmer*.

NEW GRAPE FROM MR. CAMPBELL OF DELAWARE, OHIO.—With a cluster of most delicious grapes, we have the following note:

"I take the liberty of sending you to day, by mail, for your examination, part of a cluster of the first fruits of a hybrid grape grown from Concord seed, which had been fertilized with

pollen from Joslyn's St. Albans or Chasselas Masque. The vine seems even stronger in growth than Concord, and the foliage very nearly as good. I send you also a leaf from the vine, that you may also judge of its character.

I do not like to say much of my own productions, but will say that I think it comes nearest to a fine foreign grape, produced upon a strong, healthy and hardy native vine, of anything I have yet produced; although I have been experimenting in that direction, and with that object, near twenty years."

PEACH FROM DANVILLE, N. Y.—Mr. T. T. Southwick sends us a Peach with the following note:

"We send you a seedling Peach by mail, a chance seedling coming up in my back yard. It is about ten days in advance of last season, and only about two-thirds as large. Its late season of ripening, good quality, size, fine appearance and small pit, seemed to recommend it as being a 'good thing.' What say you?"

Well, what we say is, that if this Peach always produces as good fruit as this one sent us, it is a very fortunate "chance" seedling to find. Mr. Robinson had been to see us a few days previous, and after praising up much that he found in the United States, fell back on the Peach question. "He had tasted none like the wall Peaches of England." We should liked to have shared this one with him.

NEW AND RARE PLANTS.

RETINOSPORA PLUMOSA.—This elegant little coniferous tree is one of Messrs. Veitch and Sons' numerous recent introductions from Japan. In common with most other trees of this genus, it is scarcely hardy, but being of a most elegant and peculiar habit, well deserves a place in the cool conservatory, as a companion (though a humble one) of the noble Norfolk Island pine and the curious *Dacrydium cupressinum*. The plumose *Retinospora* has much the character of a lycopod in its general aspects, and being of a fine glaucous hue, quite different to the prevailing dark colors of most other species, will be valued as a nearly hardy decorative tree. In mild moist climates it may be planted out with safety.—*Gardener's Weekly*.

IRETINE LINDENI.—What few plants of this I have bedded out this season have done very well and are very effective, but I should also state that they are planted in very good soil and have been well supplied with water, without which treatment I don't suppose they would have made much progress in a dry and hot season like the present. I consider it very far superior to *I. Herbstii* in every way, and think it will prove an acquisition as a dark foliage bedding plant. The color is distinct and rich, and the habit of the plant good. I have lately seen it very good in another garden in this neighborhood.—J. H. MASON, in *Gardener's Weekly*.

GERANIUM ITALIA UNITA.—This beautiful silver tricolor is splendid with me this season bedded out, both in growth and brilliancy of leaf-marking. My reason for noting the fact is because I so repeatedly hear this gem of tricolors condemned for bedding purposes, on account of its poor growth. That it is not an over-free-grower, I grant; but the secret of success with this variety is to plant it in rich soil, and supply it with an abundance of water at the roots in dry weather. Indeed, I find this treatment answers best for all the tricolors when bedded out, whether gold or silver edged varieties, their leaf-markings being much brighter when so treated than when grown in poor soil or allowed to become very dry

at the roots. Even under the most favorable management, the foliage of the tricolor varieties is never so bright in the very hottest part of the summer as it is in the earlier and later parts of the season, when the sun is less powerful and the atmosphere cooler; at least, such is my experience with this class of plants. Lady Cullum and Laura (a seedling of my own, not yet sent out,) amongst the gold-edged varieties, have kept their color best with me this season. Italia Unita has been good this season through, and, like all the gold-edged varieties, is daily improving since the weather became cooler.—J. H. M., in *Gardener's Weekly*.

DOMESTIC INTELLIGENCE.

THE PEACH TRADE.—The *New York Times* says, that in the season "every man, woman, and child luxuriates at a small expense in the most delicious fruit known to humanity." But it is admitted that the peach of the southern counties of England is superior to the American, and that Covent-Garden peaches are from four to eight and ten times as large as Washington-market peaches. New York draws its supply chiefly from Delaware, Maryland, and part of Pennsylvania. Most of the fruit is sent by railroad in through cars; in favorable weather it arrives in much better condition by water, but weather cannot be relied on. The supply which reached New York and Philadelphia last year exceeded four million baskets, a basket averaging 200 peaches; but this year there is hardly half a crop, owing to an "eastern blight." The method of the peach trade in New York in the season is this: A trip to Jersey City about 1 A. M. will show a shabby-looking unwashed crowd awaiting the cars. As soon as they arrive, no time is lost in selling, and 100,000 baskets are gobbled up very quickly, in quantities varying from 50 to 500 baskets at a time, by middle-men. Now comes the turn of the first-class retailers, who often spend \$3 to \$5 a basket for choice lots; then the grocers, a hard lot to suit, but good buyers, make a large hole in a consignment; after them come the apple-women, pretty hard at driving a bargain, but profitable customers in the main. The shippers and preservers come in later, and generally get fruit cheap. The last customer

is the worst—the huckster. Be peaches ever so good or ever so rotten, he bides his time, and never misses a chance of pouncing on some unfortunate dealer mad with anger at being "stuck," and anxious to get back some of his money. Rarely, however, does this class of retailers get anything but the very worst article, or pay more than 75c. a basket for it. When it is considered, that on a moderate computation there are over \$10,000,000 embarked in the Eastern peach trade, the profit on which exceeds \$35,000 per annum to the growers, laborers, and mechanics of the region, nearly \$250,000 per annum to the New York commission houses, \$1,400,000 to the railroad and freight companies, and perhaps another \$3,000,000 to the vendors in New York, an idea of the importance of the trade may be had.

DEATH OF A MARYLAND HORTICULTURIST.—Dr. John H. Bayne, the eminent horticulturist, of Prince George's county, Md., died on the 18th inst. The late John S. Skinner gave him the title of "Prince of Horticulturists."

THE RICHMOND PEACH.—This is a new seedling, one of two saved from a lot of 500, by Dr. E. Ware Sylvester, of Lyons, who has kindly favored us with a sample of the truly luscious fruit. It resembles in appearance the Early Crawford, but is much sweeter, and of finer flavor. Dr. Sylvester claims for it:—first, that it is more hardy than the Early Crawford; second, that it is as large as the Early Crawford; third, that it is as firm for marketing as Early Crawford; fourth, that it is as handsome as the Early Crawford; fifth, that it is as sweet as any first rate white peach, lacking the acidity of the Early Crawford, however ripe.—*Country Gent.*

THIS YEAR'S PEAR CROP.—The Pear crop in New England is undoubtedly the largest since 1862. The hailstorm which passed over Boston in June cut the fruit badly; but this was quite limited in extent, and generally the fruit is fair and of fine quality. We think there have never been so many Bartlett's in the market, good ones having been sold at wholesale as low as two dollars per bushel for such as commonly bring two or three times that price. It is the opinion of one of the best authorities in pear culture that the proportion of first-rate fruit years is three out of ten, with four moderately good crops, and three poor. This year, in spite of the extreme drouth, not only the pears, but the apples and grapes, are unusually abundant and excellent.—*Journal of Horticulture*.

COUNTY FAIRS.—A more than usual interest appears to centre in our county fairs this year, and the premium lists and regulations show a commendable progress. We hope for a decided improvement in the Awarding Committees. Let these meet the exhibitors face to face, each man show all the good points of his goods, and, after a patient hearing, let the decisions be made. In England these committees are called jurors, as they are in fact set to hear and to decide the question of merit. The idea that judges should be hoodwinked, like Dame Justice, in order to hold the scales even, is a sad burlesque on the integrity and intelligence of the American people. We might as well blindfold the jury, so that they cannot see the parties to the suit, or the attorneys and the judges. It is time we make these things open and above-board. Let us look at one or two instances of sight-seeing: John Maxwell exhibits six varieties of named apples for the premium for the best six winter apples. Joseph Conlan presents ten varieties. The judges fancy that one variety of Mr. Maxwell's apples are not true to name, and this, taken from the list, throws him out of the competition, and though Mr. Conlan has ten varieties to draw on, yet they are all inferior, but he gets the prize, and his inferior varieties are set forth as the best, from the fact that they have taken the first premium. Mr. M., knowing that his varieties were correct, appeals to Downing, Monroe, and Warder, and, with books in hand, is ready to prove assertion. But no; the exhibitor has no rights that the committee are bound to respect, according to the laws laid down in the "rules and regulations."

Besides this, he is liable to be thrust out for such impudence. In short, the society has voted that the committees are infallible, and that no such nonsense will be permitted. We can thus see that, in all probability, the Pope caught the idea of infallibility from the managers of our State and county fairs, for by them this doctrine is put upon its broadest basis, for is it not written, that "anyone attempting to influence the judge shall be excluded from competition?"

"Away with your books, Mr. Maxwell, for we cannot be influenced. Did we not tell you that your Rambo was not true to name? Besides, it is further written, that 'in making awards, it is recommended that judges have no discussion, but that, after a thorough examination, they proceed to vote by ballot until a decision is made.'"

"If it is not Rambo, you would like to know what we call it?" Well, we don't call it at all; we have voted that it is not Rambo, and as that leaves you one less variety than the list calls for, you are out of the question. *Exeunt*. Mr. Maxwell, *solus*. "Well, those fellows beat me all hollow. I will bet ten dollars that they cannot name ten varieties of apples after the labels are taken off. I will try try them." He goes to Mr. Smith, who has the twelve best varieties for winter, and arranges with him. They change the labels; Greening goes on Golden Russet, Perry Russet on Boston Russet, Smith's Cider on Romanstem, Willow on Ben Davis, Winkler on Winesop, and Snow on little Romanite. Our astute committee soon make their appearance and look over the collection of Mr. Smith, and pronounce them all correct. But, as they are about to pass on, Mr. Maxwell calls their attention to the fact that the flesh of the Snow apple is pure white, and not yellowish, as in the one labelled Snow by Mr. Smith. The apples are cut, and the bystanders make more or less invidious remarks about the committee. One gentleman volunteers the remark that not one of Mr. Smith's apples is correctly named. Some wag says: "He has been here and changed the labels, for all the varieties in the list of Mr. Smith's are here. Please let me arrange them." And this is the infallibility of the committee, doubtless equal to the infallibility of the Pope. Let us have a change; let parties be heard in explanation, and then let the committee decide according to the facts and the law. No hoodwinking and no throwing of dice for the awards.—*Chicago Tribune*.

FOREIGN INTELLIGENCE.

CULTURE OF THE LARGE-FLOWERED OR SHOW PELARGONIUM.—Among hardy flowers the Rose is justly called the queen, and quite as justly may the large-flowered Pelargonium claim the same exalted title among greenhouse flowers; but how very rarely are plants met with grown as the deserve to be! How often, instead, do we find them crammed among all sorts of plants, and subjected to every variety of treatment: hence we generally find spindly long-drawn specimens, often infested with insects to such a degree as to render them a nuisance, instead of a pleasure. Now, no plant is easier to manage, and the following mode of cultivation will bring them to great excellence. At this place we like them in bloom throughout July, and now (July 8th) the collection of upwards of eighty sorts is in full bloom.

I put the cuttings in about the end of May or first week in June, taking what I can spare or get when staking the specimens. I make them in the usual way, and dibble them in an open south border, give them a good watering when first put in, and then leave them to take care of themselves for three or four weeks. I then pot them in 60 sized pots, and keep them close for a few days until the begin to grow, afterwards I give them a little more air. (The framed used when they are potted the first time should have a little bottom heat.) In a few weeks they will have made good roots, and may be hardened off gradually, and about the end of September or beginning of October potted in the next size of pot, or small 48's. When that is done, the best place for them is a shelf in a greenhouse, and when they have made a fresh leaf or two nip out the point of the shoots. They should be again shifted using 6-inch pots, in which size they should bloom the first year.

After they have finished blooming or begin to look shabby, they should be placed out of doors, and not watered much for a fortnight, when they will be ready to cut down, which operation should be performed with a sharp knife, cutting them down like an Osier stump, and leave them outside until they have broken well, when they should be carefully taken out of the pots, and have every bit of the old soil shaken out, and the ends of the long roots shortened. They should

then be potted into their blooming pots, placed in a warm frame or house, and be only sprinkled until growth commences, care being taken not to make them too wet, or the soil will turn sour. They should always have plenty of room and light, and abundance of air whenever it can be given, for that is one of the secrets of success. Always be on the watch for green fly, and as soon as that makes its appearance give them a good tobacco fumigation for two successive nights.

Keep a very low temperature all winter, and nip out the points of long shoots till February, after which time it should not be done. No liquid manure should be given till the flower buds begin to form, when they should have some once a week. When the shoots are long enough, they should be thinned if they require it, and tied out to neat straight sticks, which are best made out of plasterers' laths. Watering must be well attended to, for if they are allowed to become very dry they soon suffer, and produce small yellow leaves, and a warm dry temperature is very conducive to filth of all sorts.

The following compost I find answers extremely well:—To four barrowloads of good pasture loam I add one of old Mushroom-bed dung, one of charcoal broken up fine, one of very old leaf mould, and one of cocoa-nut fibre refuse, the whole well mixed. I drain the pots with charcoal.

The following varieties are all distinct, first-rate, and would form a good small collection, of course plenty of others might be added:—Troubadour, Progress, Charles Turner, Heirloom, Favorite, Viola, Hermit, Decision, Congress, Beauty of Windsor, King of Trumps, Queen of White (Dobson's), Rob Roy, Emperor, Victor, Magician, Diadem, Example, Queen of Scots, Turban, Mary Hoyle, Captain John, Lord Lyon, and Lady of the Lake.—RICHARD JAMESON, Gargrove, in *London Journal of Horticulture*.

XANTHORRHEA AUSTRALIS.—In our regular columns of communications a correspondent furnishes some interesting notes of Australian vegetation. We have thought it would give that article further interest by giving the following illustration from the *Gardener's Weekly Magazine*, which has also a vivid description of the plant.



THE GRASS TREE OF AUSTRALIA (XANTHORRHEA AUSTRALIS).

SEX IN PLANTS.—A curious instance of the production of stamens in a female plant of *Lych-nis diurna* is recorded in the English journals as having been noticed by Miss Becker. Sometimes the flower is attacked by a fungus, a species of *Ustilago*; in these cases it forms stamens as well as pistils.

POT ROSES FOR EXHIBITION.—All true lovers of floriculture agree in calling the Rose the queen of flowers, the most beautiful of all, the loveliest among the lovely; and rightly so too, for in the varieties of this charming family we have flowers of the most exquisite form, the richest color, and the most delicious perfume. Take for instance, a partly expanded blossom of Alphonse Karr, in what flower can we find a closer approach to perfection? its shell-like petals, of a peculiarly soft and pleasing shade of pink, are so beautifully fitted to each other that the fine form of the flower leaves us nothing to desire. The delicate beauty of Lamarque, the magnificence of Charles Lefebvre, the splendor of the deep rich Eugene Appert, distinct and striking in every feature, its dark elegant foliage being in fine keeping with its velvety-petalled blossoms—these, and a host of others possessing some equally distinct feature, are the kinds to grow; these are the rare gems which command our admiration and rivet more firmly the chains of our "old love."

I have frequently asked myself the question, as I doubt not others have done, when viewing the long ranks of cut blossoms staged in their stiff formal boxes at a flower show, "Is this the best way in which to exhibit the Rose?" I think not. Cut flowers, but too often without buds or foliage, are subjected to the severest criticism, shorn of much of their beauty; but if each variety were to be exhibited not cut from the plant, excepting in the case of novelties, but in the form of a pot plant, what a different appearance would a Rose show present; instead of the long lines of flat staging now used, an effect rivalling that of the Rhododendron Show at South Kensington might be obtained with the greatest ease. From my own experience of Rose culture, I can see no real difficulty in the attainment of an object so desirable, but, on the contrary, very much in its favor. Rose cuttings are easily struck, and the plants grown to a considerable size in a short space of time, as I thoroughly explained in an article published in this Journal last year (vol.

xvi., pp., 77, 78,) and if an annual batch of cuttings were made, a succession of healthy pot plants, as flourishing and prolific as those planted out, could be maintained. If it be objected, that the culture of Roses in this way for exhibition would make greater demands upon one's time and skill, I think this could very justly be met by pointing to the great utility of such plants for home decoration at all seasons of the year. Moreover, by offering the principal prizes for pot Roses, attention would be drawn to a branch of floriculture but too often neglected, or not understood. Who has not seen the miserable specimens of pot Roses so frequently to be met with in private establishments? Poor sickly-looking objects, which, having undergone their annual forcing, are turned out to rest. To rest! why, I do not believe a healthy Rose is ever at rest. Plant one early in November, lift it and examine its roots at Christmas, and plenty of new rootlets from 1 to 2 inches long will be seen; here is a hint from Nature, which, if acted upon in the culture of pot Roses, produces the best results. If a Rose, after it has done blooming, immediately begins to grow again, suitable food should certainly be given it; it is therefore necessary, when pot Roses are taken out of the houses into the open air, that all weakly growth should at once be cut clean out, the requisite thinning and shortening given to the stronger wood, the roots shaken free of the old soil, repotted and the pots plunged to the rim, not behind a wall or shed, but in an open airy position. Plants so treated, and fed occasionally with guano water as they appear to need it, will produce plenty of stout wood clothed with healthy foliage, care being taken to ply the syringe among them all the summer.

Once again I would urge all who really care for Roses to grow them on their own roots, and to train them as I have before advised. No standards can equal the appearance of these glorious pyramids, laden with a multitude of flowers. Nor are their flowers small or puny, although produced in such profusion; the plants are rendered so vigorous by the abundance of stout suckers constantly springing up, and which are trained to whatever part of the plant they may be required, that the lowest tiers of branches present an amount of vigor both in wood growth and bloom quite equal to that of the highest parts.—EDWARD LUCKHURST, Egerton House Gardens, Kent, in *London Journal of Horticulture*.

MARECHAL NIEL ROSE.—The finest Marechal Niel Rose plants, we think we may venture to say in England, are at Wollaton Hall, near Nottingham; and, so far from training being necessary to the production of bloom, one of these plants within the last three months—take your breath, Rosarians—has not produced less than one thousand flowers. Now this plant was planted a dormant bud upon the brier two years ago last October. It is trained up one of the pillars in the conservatory for about 12 feet, it then proceeds across the span of the roof and branches right and left about 41 feet. This plant may be said to receive no training; the main branches are supported by trainers from the roof and the lateral blooming branches depend in graceful "wreaths of roses," that to see once must be a "joy for ever." Other plants of Marechal Niel, at Wollaton, are scarcely less beautiful, and climbing Devonensis and Gloire de Dijon are not less superb than the Marechal referred to. It will thus be seen that neither training, pruning, nor the Boursalt stock are the sources of success with Mr. Gadd, the indefatigable gardener at Wollaton. His practice may be intensified in a single sentence, *free growth and thorough maturation*. Mr. Gadd does not say prune not at all, but he prunes very little, his practice being confined to thinning the weaker spent branches out and shortening the stronger ones back to two thirds or three-fourths of their length—and thus he obtains his wreaths of Roses in March, April, and May, and again in autumn. Now upon the subject of pruning there can scarcely, we imagine, be a second opinion that gardeners, high and low, rich and poor, have run entirely and particularly mad. They prune because it is fashionable; and they curtail growth in order to increase the luxuriance of the plant. Can anything be more monstrous? It is something like damming the source of supply, in order that the reservoir may be the sooner full. Pruning is a nice art. By it plants may be made to play strange fantastic tricks, but by it no man ever yet made a healthy plant produce more growth or bulk than it would under controlled management. Half the cultivated trees in our gardens are ruined by pruning.—*Nott's Guardian*.

DALECHAMPIA ROEZELEANA ROSEA CULTURE.—This is one of the most beautiful plants, and requires but little skill in cultivation. We have it now in a vinery, beautiful with its bright

rosy pink bracts contrasting, as they do, well with deep green, graceful, drooping Oak-like foliage. It is seldom or never out of flower, and the plants bloom when a few inches high. It is readily raised from seed, which ripen freely. Sown when ripe in sandy peat and loam, and placed in a hotbed, the plants soon attain to a flowering state. It requires a cool stove, but will do well in a vinery or even in a greenhouse in summer indeed, we think it will do in a warm greenhouse in winter, but not having tried it we cannot say positively. We grow it in a compost of equal parts of sandy peat, fibrous loam, and leaf soil, with a free admixture of sand, and afford good drainage. The potting is done in April; that satisfies its wants until autumn, then we again repot, removing what soil we can without interfering much with the roots, and give a moderate shift, and we have flowers all winter. In point of moisture it requires the soil moist, good supplies when the soil becomes dry, and a moist atmosphere. With frequent sprinklings overhead it is at home, but as that interferes with the beauty of its bracts, a moist atmosphere is necessary, as it is rather subject to red spider, but that yields readily to a sponging with the solution of soft soap, 2 ozs. to the gallon. Being very enduring of a dry atmosphere, it is one of the most useful of plants for house decoration. We cannot name plants from leaves. Specimens with both flowers and foliage are necessary.—*London Journal of Horticulture*.

DRACENA PROPAGATION.—The best mode of propagation is by eyes. The plant should be cut down to within two or three eyes of their base, and the part taken off should be cut into as many lengths as there are joints, which should be inserted singly in small pots, vertically, in light sandy peat and loam, just covering the eyes with soil. Place the cuttings in a hotbed of from 75° to 80°, and keep them close and moist, but avoid making the soil wet. When they have grown a few inches high remove them to the stove, shifting them into larger pots as required. The top of each shoot should be formed into a cutting, which will strike freely in a temperature of from 70° to 75°, if covered with a hand-glass, and kept close and shaded from bright sun until rooted. *Ficus elastica* may be propagated in the same way at this season, both from eyes of the well-ripened wood and the short-jointed shoots.—*Cottage Gardener*.

HORTICUTURAL NOTICES.

PENNA. HORTICULTURAL SOCIETY.

The regular monthly meeting is not usually very brilliant in October. Exhibitors take a rest after their efforts at the annual September meeting. Mr. E. Satterthwait had, however, some remarkably fine specimens of the Rutter Pear amongst his other varieties. It is strange that this pear, really one of the best in existence, should be so little known.

Mrs. Isaac B. Baxter's gardener, J. McLaughlin, had also some very fine pears, amongst which we noticed an extra fine Kingsessing, Niles Glout Morceau, Passe Colmar and Triomphe de Jodoigne. Some of the last variety Mr. McL. has raised this year, weighing 1 pound. It is remarkable that all of Mrs. Baxter's pears ripen earlier than the same varieties with other people. Glout Morceau, for instance, was now yellow and in eating condition.

Mr. Geo. Huster had some very nice hot house grapes, amongst them a variety unknown to us, which he called Schosse's seedling. This he said was an accidental seedling, raised near Philadelphia, and which had been now three years in bearing. The bunch was long, rather slender, with two long, loose shoulders; berries black, round, nearly as large as average Black Hamburg, and with the flavor and some other peculiarities of the St. Peter class of grapes. We were highly pleased with it.

The Dahlias of Gerard Schmidt were as usual excellent, and there were many nice collections of cut flowers, but nothing that we thought particularly new up to the hour fixed by the Society for staging things, 7.30, at which time our reporter had to close for another engagement. We make this note in case any exhibitor came late, and might think his articles, perhaps really meritorious, slighted intentionally.

WARSAW, (ILLS.) HORTICULTURAL SOCIETY.

We find in the summer meeting report the following interesting discussion on Raspberries:

President Hammond requested Dr. Hay to take the chair, which he did, and called the meeting to order, stating that the subject for discussion to day is, "Small Fruits—Modes of Culture."

The Secretary said he would set the ball rolling by mentioning Raspberry culture. He had formerly allowed the canes to grow too long. The true system is to cut or pinch back the new shoots as soon as they reach a height of three feet, or even less. This will be late in June. They will then throw out lateral shoots. These side shoots should also be shortened as soon as they reach one foot or fifteen inches in length. This shortening in causes the plant to grow more stubby, and they stand up better, besides yield-

ing a larger quantity of fruit. In this way they require little or no staking; though a single wire run along the row two feet or two and a half from the ground, furnishes a good support. They should be tied to it with a coarse string or bark. As soon as the fruit is off, the bearing wood should be cut away. This treatment with good cultivation and thorough mulching, will ensure a good crop, of raspberries or blackberries.

The red sorts, such as do not take root from the tips, but sucker so profusely, he had long ago discarded: but believed that by close attention and free use of a knife and hoe, good crops of these also might be had.

Mr. Chittenden combatted the idea of cutting back, as requiring too much time, and instanced the cultivation of the Red Antwerp and Golden Cap, in cases where they were allowed to do as they pleased—good crops being the result. Had tried cutting back and cultivating, both with the Raspberry and Lawton's Blackberry, and should do so no more.

Mr. Crouse advocated the theory of good culture and cutting back, as the true way to grow the Raspberry and Blackberry, and insisted that much larger crops of better fruit could be obtained in that way. He mentioned several varieties—Mammoth Cluster, Doolittle Black Cap, Franconia, Philadelphia &c.—that were doing well in his grounds.

Mr. Willis—Grows the Ohio Everbearing chiefly. Believes in deep culture, thorough culture and mulching. By this method he gets a fair crop all summer. Has tried the Catawissa, the Red Antwerp, Philadelphia, &c. Thinks the Ohio is preferable to all others.

President Hammond—Expressed the opinion that cutting back was the true theory, in most cases, but would not cut the Lawton Blackberry so much. He believed that it had a great influence in causing the wood to harden, and thus prevent winter-killing.

AMERICAN POMOLOGICAL SOCIETY.

Our Richmond friends are already preparing for the biennial festival.

A recent number of the *Southern Planter* says:

It may not be amiss to call attention to the fact that this Society has secured the meeting of the American Pomological Society in the city of Richmond, in September, 1871, and even thus early bespeak the co-operation of our citizens in entertaining a convention which will number probably two hundred delegates, from all parts of the United States, and which cannot fail of doing much for the benefit of this city, and the entire State. Not only will delegates be in attendance upon this convention, but the Horticultural and Pomological Societies for all the States will exhibit fruits, wines and flowers from their respective sections.

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HINTS FOR BEGINNERS.

PIKING GARDEN AND PLEASURE GROUNDS.

We are again of the sort of writers who do not labor, glad to see that some use is made of our knowledge. We are particularly glad to see that our "hints" have been found useful by some of our readers. It has been suggested that we should have a section devoted to the subject of piking, and we have accordingly added a few hints on this subject to our present issue. It is not our intention to give a complete treatise on the subject, but to give a few hints which may be found useful by some of our readers.

It is well known that the soil in a garden or pleasure ground is not always of the best quality. It may be too heavy, or too light, or too rich, or too poor. It may be too dry, or too wet, or too cold, or too warm. It may be too hard, or too soft, or too loose, or too compact. It may be too fertile, or too sterile, or too rich, or too poor. It may be too dry, or too wet, or too cold, or too warm. It may be too hard, or too soft, or too loose, or too compact. It may be too fertile, or too sterile, or too rich, or too poor.

There are many ways of improving the soil, and we have given a few hints on this subject in our present issue. It is not our intention to give a complete treatise on the subject, but to give a few hints which may be found useful by some of our readers.

So it is that we have never dared to lay down any absolute rule for gardening operations. We are content to give what we write the modest name of "hints," hoping the reader will receive

some benefit from them. It is not our intention to give a complete treatise on the subject, but to give a few hints which may be found useful by some of our readers. It is not our intention to give a complete treatise on the subject, but to give a few hints which may be found useful by some of our readers.

With these hints, however, we would like to say a few words about the soil. It is well known that the soil in a garden or pleasure ground is not always of the best quality. It may be too heavy, or too light, or too rich, or too poor. It may be too dry, or too wet, or too cold, or too warm. It may be too hard, or too soft, or too loose, or too compact. It may be too fertile, or too sterile, or too rich, or too poor. It may be too dry, or too wet, or too cold, or too warm. It may be too hard, or too soft, or too loose, or too compact. It may be too fertile, or too sterile, or too rich, or too poor.

The more out-door operations, however, come under our present head. One of the best hints among the best.



THE MARTHA GRAPE

ENTRAGED EXPRESSLY FOR THE GARDENER'S MONTHLY

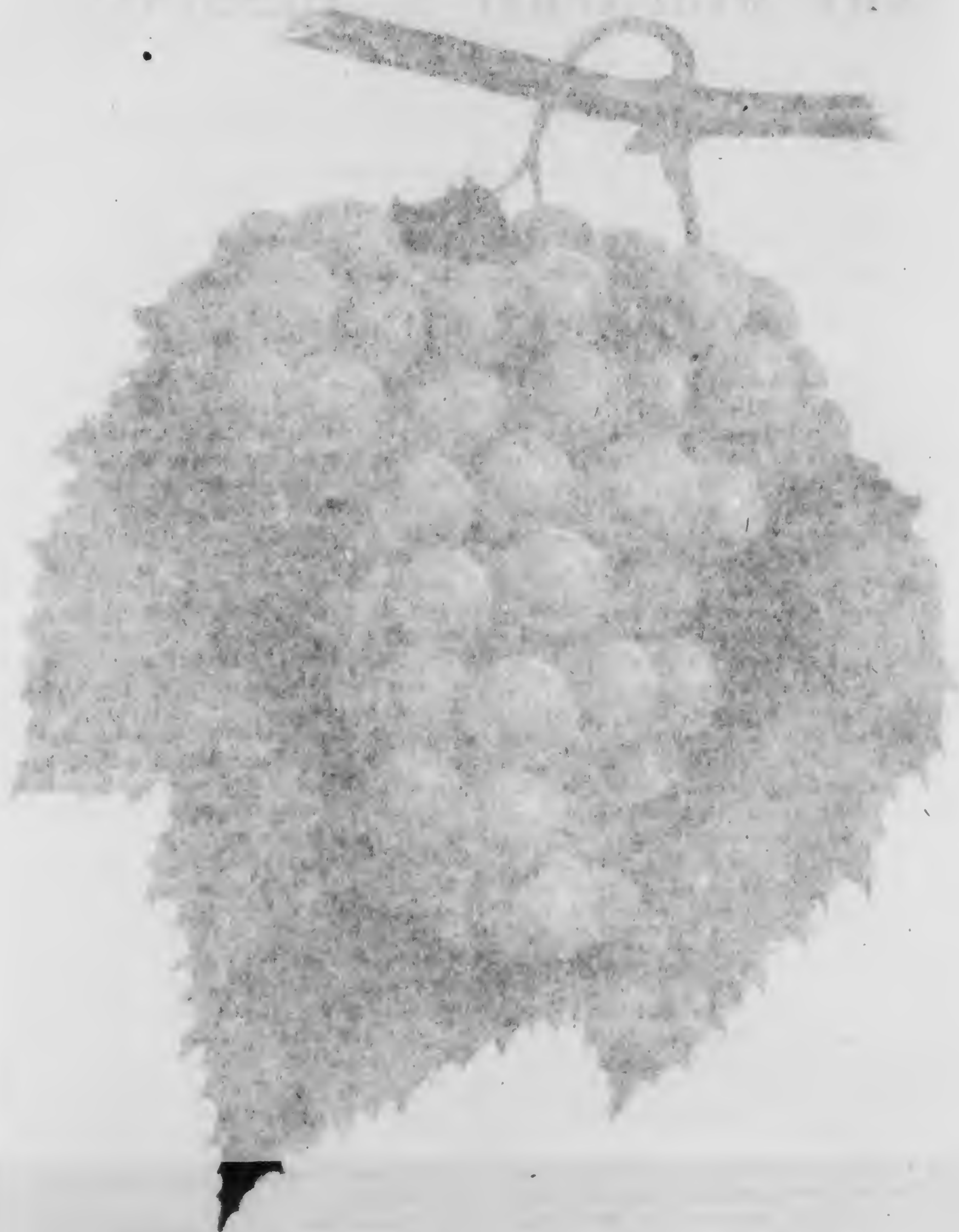


THE MARSH WHITE

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HINTS FOR DECEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

We are again at the end of another year of our labor, glad to feel that they have been of some use in the spread of horticultural taste and knowledge. We are particularly glad to feel that our "hints" have not been thrown away. We endeavor to make this an especial feature of our magazine. Here we admit nothing but what has been submitted to the severe test of practice and experience. In other departments we strive to encourage thought, and allow latitude to speculations; but in this only those things are suggested that have been tried in the balance and not found wanting.

It is often said that what is science to-day is not science to-morrow. This is equally true of practice. If we take up the hand books of culture of the past generation and compare them with the present, how wonderful is the change! So even with us; conscious as we have already been that what we taught was really the best way; yet we find, year by year, our practice changes, and we have to feel that perfect culture has not been reached.

Thus our monthly hints, though season by season in some respects, necessarily similar, are always progressing; and those who follow us regularly, can but note that no course of practical conduct in the garden is so perfect that something better cannot be taught.

So it is that we have never dared to lay down any absolute rule for gardening operations. We are content to give what we write the modest name of "hints," hoping the reader will receive

them as such, and give to them some thought of his own before putting them in practice.

We usually commence with the *Flower Garden*, because it is the first gardening any of us do. As children, we have our little gardens of "Johnny-jump-up's," "Forget-me-not's," "Sweet Williams" or "Roses;" and it is only as we get to fight the stern battles of life, that what we shall eat, or wherewith shall we be clothed, troubles us. Even when we become children of larger growth, a geranium or a mignonette in a window sill, is often the extent of our gardens long before the cabbage plot or the strawberry beds come into existence.

Well, these same geraniums and window flowers will want all the sun light they can get at this season. Many suppose that if plants in windows get light, that is enough; but there is nothing so good as sunlight. This is even of more consequence than heat. Flowers will generally be in greater proportion in a window at 55° than in a much higher temperature without the sunlight. Most of the old fashioned window plants are still among the best. For instance Mignonette, Sweet Alyssum, Zonale Geraniums, Cupheas, Fuchsias, Violets, Roses, Plectranthus, Chinese Primroses, Lobelias, Oxalis, *Solanum semi-baccatum* or "Jerusalem Cherry," (of which the dwarfed kind *S. capsicastrum* is an improvement,) Catalonian Jasmines, Daphnes, Sweet Olive, Laurustinus, and where there is a little knowledge, Camellia and Azalea are still among the best.

The more out-door operations, however, come under our present head. One of the best hints

in season, is to see what can be thinned out. There is no place that we know of where the axe and saw may not be used to advantage in even a some sort of merciless manner. Places must be planted thick in order to get an immediate effect,—and they must be thinned as they grow, if a continuously pretty place is desired. It is here that true artistic skill comes in. It takes genius to plant a place properly; but a higher cast of it to judiciously thin out. It is said that the ridiculous practice with many people of heading back their ornamental trees—especially those on the streets in winter time, originated through the advice of frozen out jobbers who wanted something to do. It is murder to the trees. They soon die outright after a few years of this treatment. If men want work, and will advise to thin out, they will do good to those who employ them, and save the wear of conscience—that is, those who have any.

We have often pointed out the advantage to places of being sheltered from cold winds in winter by belts of evergreens. This advice will be appreciated at this season. Many plants like the Deodar Cedar, Cedar of Lebanon, and English Holly, can only be grown in this region, when the plants are protected by these belts. The best kinds of Evergreens for making belts, on account of their rapid growth and warmth imparting character, are the White Pine, Scotch Pine, and Norway Spruce; among deciduous trees the Larch, Silver Maple, Birch, Scotch or Sycamore Maple, and the Cottonwood Poplar, which can be cut away as the others grow.

Besides trees for shelter, good hedges serve the triple service of shelter, protection from trespass, and beauty,—setting aside their cheapness as compared with lumber fences, now that their proper management is understood, their superiority in the points we have designated gives them commanding claim on every one's attention. They need not be always of evergreens. Beech and Hornbeams are excellent deciduous things.

A very large portion of the wealthy community are deterred from doing much at gardening, from a prevalent idea that it is very expensive. The gardener is apt to think as gardening is for pleasure, while farming is for profit, there is not the same necessity for consulting labor-saving ideas; but when it is clear that the more we cheapen necessary expenses, the larger the establishments can be made, it is clearly the inter-

est of the gardener, as of the farmer, that the smallest means to the greatest ends, should be well studied by him. In this respect the introduction of lawn mowers has been of decided benefit. At this season one may study how to adapt a lawn to these machines. The surface must be very even. To make them so, soil may be hauled during the winter season, and the uneven spaces filled up. In Spring, rake the whole smooth, and roll down; and the grass will soon come through and make an even lawn.

A great many little things of this character can be studied out at this season of the year. Where there is nothing to add to a place, a few of the decorative portions of one's grounds may be slightly altered. Though one of the charms of a garden is the incessant variety caused by the growing changes of form and outline in the shrubs and trees, this may be often added to at a trifling expense by other changes.

It does not, in very many cases, require much time or money so to alter the appearance of a place as to make it bear a very different look to what it did in the past year. A new clump of cheap shrubbery may be planted, or an old one taken away to admit a new view that may have grown up since the original planting. A strip of grass may be laid down on what was once bare gravel. Here a small rockery may be put together; there a nest of roots thrown up, and ferns and trailing plants freely interspersed between them. In this corner you may place a stump, and entice ivy or some climbing vines to grow over it—a rustic arbor may be formed in some inviting nook, and in another shade-enticing spot, a rustic chair or bench be fixed. Even the outlines of the flower beds may be changed, or of the walks themselves, or even the contour of the surface in some instances, and all, in many cases, at the expense of a very small expenditure of time and money.

Soil for flowers may also be looked up during the winter season. Very few understand that an occasional change of soil is very beneficial to flowers in beds, though all know how important it is to flowers in pots. There is nothing better than surface soil from an old pasture, taken off about two inches deep, and thrown into a heap with about one-sixth part old hotbed dung to partially decay. In addition to this "staple" item, smaller quantity of different matters should be gathered together for peculiar cases, or particular plants. Peat, for instance, will be found very useful for many kinds of plants. This is

not, as is often supposed, mere black sand; but a spongy, fibrous substance from the surface of bogs and boggy wastes. Sand should be collected sharp and clean; the washings from turnpike ditches are as good as any thing. Leaf mould is best got already well decayed from the woods. That one makes for himself from rotten leaves is seldom good for anything; it is always sour and seems "indigestible" to vegetation. A load or so of well-decayed cow-manure is a good thing for the gardener to have by him, as all those plants that dislike our hot summers, and want a cool soil to grow in, prefer it to any other manure. A small pile of hotbed manure is almost indispensable to the garden.

GREENHOUSE.

Year by year the demand for cut flowers increases, and it is far more important in these days that a gardener keep his employer's table and family in these, than to have the nice specimen plants so much in fashion some years ago.

To have plants bloom freely at this season, heat, moisture and fresh air are essential. It is even good economy to lose some heat in order to gain the advantage of opening ventilators or windows, if the weather outside be not favorable enough without. The *Camellia*, *Azalea*, *Daphne*, *Stevia*, *Poinsettia*, *Euphorbia*, *Violets*, *Tree Carnation*, *Lopezia*, *Eupatorium*, *Cineraria*, *Perennial Candytuft*, *Deutzia gracilis*, *Tea* and *Noisette* *Roses*, *Epiphyllum truncatum*, *Hermannia odorata*, *Acacia*, *Bletia*, *Scarlet Geraniums*, *Strelitzia*, *Chorizema*, and most kinds Australian plants, *Verbenas*, *Bouvardia*, *Heliotrope*, are a few of the best things to grow for cutting, that occur to us as we write. The temperature should not often be below 55° to be secure of a good bloom.

We ought perhaps to add the *Rose* to this list. It is however not a very free plant to flower in the winter, unless an abundance of light can be afforded. Even then some classes of *Roses* are unfit for it. Only the *Tea* class and some of the *Noisettes* will do; there are not many of this last,—*Lamarque* being one of the few to do well. *Cels*, *Saffrano*, *Triomphe de Luxemburg*, *Hornor* and *Madame Russel* are about the best. The *Camellia* and *Azalea* are particularly valuable for cutting. The Whites are the most popular for this purpose, principally the old *Double White* and *Candidissima*; the last comes into flower a little later than the other kind. In cutting these, only the flowers are taken off, and ar-

tificial stems in the shape of small wires are given to them. The common white *azalea*, *Azalea indica alba* is also very popular among white flowers.

The *Camellia* is very apt to drop its buds if the atmosphere is too dry; but generally dropping follows any check to the roots by which the regular flow of moisture to the bud is stopped. This may be either too little or too much water; if too little, of course there is not enough moisture; if too much, the fibres are liable to have their points injured, and thus are unable to draw moisture to the bud. Usually the last bad results follow from over potting. With a large mass of soil, water is apt to not pass readily away, when the soil "sours," as it is termed. A pot full of roots will seldom drop the *Camellia* buds for any other cause than too little water.

A great enemy of the *Camellia* is the *Red Spider*. The leaves indicate its presence generally by a brown tinge, when the pocket lens, which every gardener of course carries, readily detects. All plants are more or less liable to these insects, as well as to green fly, mealy bug and scale. The best way to keep them down is by a free use of the syringe in fine days, using water in which some sulphur has been strewn. Tobacco smoke is still the best cure for aphids. Scale is a very troublesome pest; water heated to 130° is still the best. This injures very tender leaves; but the scale is rarely on such, it usually keeps to the branches or on thick leathery leaves.

Tree Carnations,—these also now indispensable winter flowering plants, want a very light place to do well. They do not generally care about very large pots—about five or six inches—but they are very much benefited by rich manure water.

The *Calla Lily* is now extremely popular. This also loves light. It must have a good supply of water, and good soil to flower well.

Towards spring the *Cineraria* comes in remarkably well for cutting. This is a "queer" plant. It is one of the easiest to suffer from frost, and yet will not do well in a high temperature. It also requires much light, and to be very near the glass. So also of the *Pansy* and *Violet*, although some frost will not hurt these.

If *Pelargoniums* are wanted to flower well next May and June, they should be attended to, and grow well through the winter. They want a rather warm house to keep them growing, and should be pinched back as they grow, to keep them bushy.

A good supply of young *Fuchsias* should be coming on now—repot as their roots fill each pot, let them not want for moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well decayed manure, and well drained with charcoal, suits them admirably.

Australian and Cape Plants are the chief ornaments of the greenhouse at this time. The *Acacia*, amongst the principal; will, like the *Camelia*, require more water while flowering; indeed, most plants which produce flowers, before they make a new growth, require more water as they flower. On the other hand, most plants which flower on the young wood at or near the completion of its growth, take less. The *Correa* is another beautiful tribe, but does not do well in most collections; it is generally grown in a peaty soil; we observed that where it seems to succeed well, the growers use a considerable portion of loam in their compost for it. This is consistent with our own experience, and we are inclined to the opinion that more loam should be used with the peat for hard-wooded plants than is generally done in this country. As soon as any Cape or hard-wooded plant has ceased to flower, it should be repotted, if it require it; many prefer waiting till the plants are placed in summer quarters before this is done, and some in the fall. We prefer before they commence to grow, whatever the season may be, as the roots being then in their most active state immediately penetrate the new soil, and before it becomes sour or sodden by frequent waterings, reap whatever advantages the air it contains when fresh may afford them. Some greenhouses are render-

ed very gay in February and March by having young plants of *Verbenas*, *Petunias*, and other bedding-out plants potted at this time into large pots, and encouraged to grow.

VEGETABLE GARDEN.

Very little can be done now in this department, except by way of preparation for another year.

Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean poles, Pea-brush, and stakes of all kinds should be got now, the tool-house gone over and put in order, and everything kept in good order and studiously in its place. When the season of operations commences, there will then be nothing to hold back the attention.

Where there can be a heat of 60° commanded, Bush Beans can be easily grown in pots, and can be gathered in two months from time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early spring salads, at the end of the month.

Radishes and Lettuces are, however, very impatient of too much heat; they will come on well if the temperature be kept at 45°. When it goes above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.

Cauliflowers in frames require all the air possible. Never allow them to become dry; this is the cause of many failures by way of "buttoning off."

COMMUNICATIONS.

LAWNS.

BY H. W. S., WODENETHE, N. Y.

R. H. N. is both right and wrong in his article on Lawns, in your October number.

Right—inasmuch as we no doubt injure our Lawns, by cutting with a machine too close in dry weather.

Wrong—in his low estimate of White Clover, which I consider entirely essential as a carpet or bottom to cover the ground.

I have had perhaps as long an experience as most persons in the use of the mowing machine—over twenty-five years. I have imported and used all the best English machines, and gave Mr. Swift, 15 years or more ago, permission to take one of my machines apart, and make certain improvements, by which he has made his fortune.

For many years I managed to keep a low flat carpet of White Clover, over which, once a week,

the machine was run, cutting simply the little spears of grass that projected above this clover carpet, and this I permitted to fly in a grassy shower, thus returning each week the growth of the week, but merely rolling down the clover. In process of time, however, the clover disappeared, contrary to the experience of R. H. N., and all sorts of minute seeds, with an endless quantity of summer or crab grass appeared, and for July and August took possession of my Lawn, which also became as hard as a hard floor.

To my annoyance, I found the Lawn of a neighbor, cut by a scythe, was as elastic and soft as a Turkey carpet, and quite free from weeds. After a thorough examination of the two Lawns, I came to this conclusion:

1st. My neighbors Lawn was cut by a scythe, always leaving his grass longer than when cut by a machine.

2d. The grass was gathered by a common wooden rake, with its teeth 2 to 3 inches apart, consequently a great deal of grass (1 to 2 inches or more long) was left on the Lawn, which the rake did not take up. This dying made a heavy mulch at the end of the season, but his lawn, for the very reason, (the dead mulch showing when you looked down upon it from a height) never looked as green as mine. Cut by a machine, the little snips of grass above the clover not gathered, but flying in front of the cutter; soon, these snips in 2 or 3 hours of hot sun disappeared, and produced little or no mulch. In addition to which, my neighbor's lawn was never rolled; while a heavy lawn cutter weighing 700 lbs. was passed every week over mine; thus, as I before said, making my lawn as hard as the floor of a brick maker's yard, which I believe to be injurious in a protracted drought.

My conclusion, therefore, is this, that the best Lawn can be obtained in this country by using a machine only up to the last of June, and after the 15th of September; but during July and August, especially if dry, mowing with a scythe, and gathering with a wooden rake, or if a lawn is too large for this, using a small, light machine, setting up the grade one or two inches, instead of using the heavy horse machine; but by all means encouraging a bottom or carpet of white clover.

Another very important thing in using a machine is, that the turns should not always be made in the same place, thus wearing out the grass, but on each mowing, as far as possible, a different turning place should be made.

THE WITCH HAZEL.

BY J. M.

A much neglected shrub is our native Witch Hazel or *Hamamelis Virginiana*. It would suit the purpose of the landscape gardener as well, or better than the much sought for English and American Hornbeams, a resemblance in growth to which it bears. An agreeable feature is its flowering late in the fall, when its leaves are mostly shed, and all other trees and shrubs may be said to be "closed up" for the season. Some specimens I saw yesterday, October 24th, were in full flower. The flowers are very fragrant, having much of the honey scent peculiar in Hon-eyuckles; they are yellow in color, thickly studded on the bare branches. It is somewhat slow of growth, and does not usually grow too large, to be classed as a large shrub.

In the numerous grounds of our horticulturists around Philadelphia, it seems almost unknown. If this short notice will awaken an interest in it, I shall be pleased.

ORCHARD CULTURE.

BY J. W. ROBSON.

Delivered at the late Fair of the JoDavies's (Illa.) Coun'y Horticultural Society.

Mr. President, Ladies and Gentlemen:—I have been announced, much against my own inclination, to address you this evening, and believing as I do that the aims and objects of this Society are not generally known in this community, though it has been in existence for several years, therefore to enlighten you, the citizens of Galena, we will make this subject our theme.

This Society was started by a few lovers of Horticulture and Floriculture for the purpose of disseminating reliable information, and to give a fresh impetus to the culture of fruits and flowers in this grand old county: and while we have been laboring here almost unknown to you, the fame of this Society has extended all over the State, and throughout the great Northwest beyond us.

Orchard culture has engaged much of our attention, and our discussions on this subject have drawn hither the best horticulturists of our State, who have uniformly declared (what we, as a society, have always maintained) that we have the finest fruit growing region in the West. A survey of the towns of East and West Galena, Rice, Hanover, Woodbine, Guilford, Thompson, Elizabeth, Menominee, Vinegar Hill, and Council Hill, will satisfy any fruit culturist that here

is a region superior to any other in the State for the culture of the hardy varieties of grape, apple, pear, plum and cherry.

As a Society, we have given publicity to the Soulard apple and crab, the Hineckly plum, and the Leib cherry, with such satisfactory results that thousands and hundreds of thousands of these varieties are being propagated in the State, and in the neighboring States of Wisconsin, Iowa and Minnesota.

Our lists of hardy fruit have been published in nearly every paper in the Northwest, and recommended as the only list that will meet the wants of both producer and consumer, and you have only to look at these well spread tables to convince yourself of the fact. We are ready to admit, however, that the fruit grower has numerous insect enemies to contend with, in the shape of the borer, the canker worm, the bark louse, the tent caterpillar, and the codling moth. The four first named insects are local in their habits, and can easily be destroyed by the careful orchardist. These he can fight alone, but the last named is ubiquitous. It matters little however much he may contend with the foe; if every other fruit grower in the county does not try to extirpate the enemy his labor is all in vain. Hoping every orchardist amongst us will make an effort to destroy the Moth, we will merely note the various modes of lessening their ravages and render them comparatively harmless.

1st. Encourage the black cap Tit-mouse and hairy woodpecker who destroy the insect in the pupa state.

2d. Light small bonfires in the orchard, on dark nights, after the fruit is set. This will destroy the moth.

3d. Pick up wormy fruit as soon as it falls, run it right through the Cider Mill, or throw it to the hogs to be eaten.

4th. Strips of woolen cloth tied around the trunk when the trees are in bloom, and examined twice a week, will destroy those that have escaped and crawled there for shelter. They will be found generally in a transformation state between worm and pupa.

5th. Place a bunch of weeds or soft hay in the crotch of the tree at the same time, and examine frequently. You have only to look at these dishes of beautiful fruit, to see how this insect destroys the appearance, and lessens the market value of the apple.

Brother Horticulturists, up and be doing,

bearing in mind that eternal vigilance is the price of handsome, perfect fruit.

We do not agree with Dr. Hull when he says "that we should not extend our fruit growing territory because we thereby increase our insect foes;" but we say to every man who owns a rod of land, plant trees and battle with the insect; and we believe the time is coming when the beautiful ridges which surround our city in a circle of nearly 20 miles, will be covered with vineyards and fruit growing trees. If we could only convince the farmer that a well cultivated vineyard or orchard will pay, this assertion would soon become a fact.

This Society has accomplished much in making the Science of Ornithology a practical Science. We were the first to announce to the public that the downy Woodpecker, and the tit-mouse destroyed the pupa of the Codling moth; that the Bluebird and Shrike are certain destruction to the Canker worm—that the Jay, and the Cuckoo guts the tents of the Orchard Caterpillars, and all others that have a hairy covering—that the Thrush and the Robin dig out those terrestrial grubs, which destroy our Strawberry beds, that the golden Oriole does eat curculios, in defiance of the State Horticulturist, and that the King bird or tyrant fly-catcher, feeds upon the gad and bot-fly, which are so annoying to our horses at this season of the year. In defense of the feathered tribes, we have taken the position of skirmishers, and are thereby drawing the enemies' fire.

On the subject of Horticulture, we as a society have done much to encourage our people to cultivate flowers, and ornamental trees, and these beautiful, well-filled tables before you, are an evidence of the fact, teaching them to adorn and ornament their homes, and we have cause for rejoicing that our influence is being silently felt everywhere throughout this city and country. The cultivation of these great necessities of life, has been urged some time, by this Society. Its members do not agree with the present President of our Agricultural Society, who has stated that it would be better and cheaper for every farmer to buy his own vegetables and fruit than grow them. We believe that the days when "hog and hominy" were the rule as articles of diet, are fast passing away, and a greater variety of our finer vegetables are being grown than heretofore. The farmers of our county would confer a lasting benefit upon themselves and

their families were they to turn their attention more to a little garden patch, and raise those rich, excellent, delicious, health giving vegetables, which you citizens of Galena enjoy every day of your lives; and yet strange to say, when spoken to on the subject, those Lords of the soil, who own all those broad acres which compose our county, answer the argument by saying "it would not pay."

But I must close. The subject of Horticulture is so vast, so boundless in its interests.—embracing questions of ornament and decoration, of food and health, of shelter and protection, of economy and profit,—that it seems only possible to do it justice by the employment of the very best talent of the land. Of course a pen wielded by a hand of necessity, tasked by daily labor, and guided by a mind engrossed with the cares of business, is hardly the proper instrument to inform or educate you in this great and growing productive science.

But ever, as we progress in social science, we come more fully to appreciate the bearings and influences of the productive arts upon the aggregate of human happiness; and, in consequence, we see more plainly the urgent need of information upon this and kindred subjects. If our social status was that of the nomad of the desert, or even many grades in advance of that, we might still feel no want of horticulture; but located in a zone like this, and being a people of development and progress, tree planting and tree culture has become one of our most imperative needs.

Thus the industries are born of civilization, and with its advancement new calls for knowledge and action are continually arising. The increasing interest felt everywhere in this free country in horticulture, is a hopeful sign of social progress, bound to lead to material prosperity, and the adornment of our common country, while the very existence of this interest is a standing demand upon every person, at all capable of giving instruction, to yield up his quota to the general fund of knowledge that all may profit thereby.

Pleasantly, indeed, during the past forty years, have we been engaged in the production of fruit. Every tree and fruit bearing plant which we have tendered, and nurtured, has been to us a source of perennial enjoyment.

Hope, alas, with all her pleasing fancies encircles every planter of a fruit tree, while year af-

ter year it is nursed and advanced to a bearing state. Hope yet remains entwined with prospective reality, until, at last its branches loaded with ripe, ruddy delicious fruit, bear out the goddess in sustaining the efforts of man to the gratification of taste, and feeling, as well as profit.

NOTES ON THE SEASON.

BY MR. A. HUIDEKOPER, MEADVILLE, PA.

The first severe frost, cutting down the tender plants, came to us here on the morning of the 19th inst. The season has been characterized by absence of severe frosts in the spring, by intense and protracted summer heat, by sufficient and timely showers of rain, by abundant and well ripened crops, and by luxuriant fall pasture to gladden the dairymen.

FRUITS.

Among others which I fruited this year, were the Israella and Maxatawney grapes—the first was sweet, had a clearer taste than the Isabella, but lacked spirit. I have eaten it grown elsewhere of higher quality.

The Maxatawney ripened fully, the berries were of good size, but the clusters were small, and the fruit had the May apple flavor that I have noticed in the Rebecca grape.

The heat in August was so great, that I found some difficulty in the vinery even, with frequent irrigation to keep the grapes from burning. To remedy the matter, the vines were loosened above and permitted to hang down a little, forming a better screen from the solar rays; after this I had no more trouble, the fruit being fine and well colored.

In the October number of the *Gardener's Monthly*, R. H. N., of Springfield, Illinois, asks for a remedy for the

THRIP.

I tried quassia for this pest the present season, with considerable success, applied in the following way, viz.: Put half a pound of quassia chips in a large crock, and fill it with boiling water, let it stand a couple of days, then pour off the water clear, and syringe the vines thoroughly; the sediment of quassia will have some strength left, and the process may be repeated some three times with the same materials. Commence this operation soon after the leaves form in the spring, and repeat the application about every ten days until the fruit is a third grown

If continued too long, the grapes will taste of the quassia.

This is an inexpensive remedy, easily applied, and might under some circumstances be used for outdoor vines.

NOTES ON SILPHIUM LACINIATUM, L. THE COMPASS PLANT.

BY THOMAS MEEHAN.

Read before Academy of Natural Sciences of Phila. Oct. 11th, '70.

It is at once the strength and the weakness of science that it takes little on trust. One would suppose that after the positive facts given by President Hill in his paper before the recent meeting of the American Association, there was no room for doubt that the edges of leaves of *Silphium laciniatum* had an average bearing north. But I find men—excellent acute observers—who doubt the facts. They say, "we took the trouble to examine the plants on the spot, and found not the slightest trace of any such tendency,—we want no better evidence than that of our own senses."

As before suggested, it is an excellent habit to verify, for ourselves, the facts reported by others,—there is far too little of this habit,—but when the observations conflict, it is safer to assume that both are right, and that there is something yet undiscovered which would harmonize the opposition, than that either one is wrong.

In this matter of the *Silphium* or "Compass plant," I was able to find this missing link, and to see that both parties were right.

When I first saw the *Silphium* to any great extent in its native localities, there was not the slightest indications of this northern tendency. It was a great surprise, as a limited knowledge of it before had taught the reverse. I determined to watch a plant carefully on my own grounds the next year. The result was just as described by President Hill. There was the unmistakable northern tendency in the edges of the leaves when they first came up, and until they were large and heavy, when winds and rains bore them in different directions, and they evidently had not the power of regaining the points lost. This often took place by their own weight alone, especially in luxuriant specimens. Mr. Hill says it was in June when he saw them on the prairies, all bearing north; when I saw them, and not doing so, it was early in September, and then no doubt the mechanical causes I have referred to, had been in operation.

The plant I have had in my garden, now for some years, affords much interest in many respects. I learned an useful lesson from it this year, in reference to the relative rates of growth in the different parts of the inflorescence. Noticing that there appeared to be no growth in the disk florets in the day, I determined to note accurately, one morning during the last week in August, exactly when growth did commence. The ray flowers close over the disk during night, and at 4 A. M., with day just dawning in the East, I found the ray petals just commencing to open back. In the disk there are about fifteen coils of florets in the spiral. There appeared no motion until 4.40, although no doubt growth commenced at 4, when the ray petals were in motion, but too slow to be perceptible. At 4.40, however, the five outer circles were evidently slightly elevated above the others in the disk. Then follows the following record in my diary:

4.45 the five divisions of the corolla split open.
4.50 corollas grown three thirty seconds of an inch.
4.55 divisions of corolla fully expanded.
5, florets two-eighths above the rest of the disk. It might be well to say here that there was no growth in any this morning but in the five outside rows we are speaking of.
5.5 5.10, no apparent change except that some which were not so perfectly opened as the others, seemed to become so.
5.15, pistil and mass of stamens slightly elevated above the level of the corolla.
5.20, corollas now about five-sixteenths of an inch above the others in disk. Pistils and stamens about two lines above the corollas. Long yellow ray petals half open, with no appearance of pollen on their pistils.

From this time forward there was no further growth of the corolla, so that this portion of the daily labor was accomplished in about three quarters of an hour.

5.25, pistil and stamens beyond the corolla 1.32 inch.
5.30 " " " 1.16 "
5.35 " " " 1.8 "
5.40 " " " 3.3 "
5.45, 5.50, no change.
5.55, pistils begin to project beyond the stamens. The first insect, a sand wasp appears. He inserts his proboscis down between the clavate pistil and the stamens, carrying away the pollen which is all over his head.
6, 6.5, pistils one line, stamens no longer lengthen.
6.10, anthers are falling away from the pistils, which are two lines beyond.
6.15 no change.
6.20, the ray petals now fully open, that is horizontal.

No change was noticed after this, except the free visits of the sand wasp, none of these however, carried any pollen to the pistils in the ray florets.

About 9 o'clock (there had not been the slightest indications of any growth since 6.20) heavier insects began to arrive, and then the slightest touch broke off the florets, which fell on the ray pis-

tils which happened to be below them, and in this way they were fertilized. These pistils died very soon after. Those pistils on the upper side (the flower leaning a little) were quite fresh the next morning, awaiting some chance to be fertilized, insects evidently not performing that office.

We here see that there were three phases of growth, with a slight rest between each,—the pistil taking the most time, then the stamens, and the corolla the least; but the whole growth of the day included within two hours.

I have used the word pistil for the clavate process which occupies the place of the true organ in perfect flowers. Of course only the ray florets of *Silphium* have perfect pistils. This clavate false pistil or orary has hitherto been supposed to be a necessary production for the fertilization of the plant. It was supposed to push out the pollen, which was thereby scattered to the ray florets about it. But these observations show that this is probably an error, and that fertilization is chiefly carried on by the easy falling away of the mass of stamens, as I have shown in a paper on *Euphorbia Jacquinæflora*, in last year's *Proceedings*, is the case with that species.

I am anxious to call particular attention to the different ratios of growth in connection with the appearance of the different floral organs in this plant; because I think I see traces of a general law in plants that there are vibrations or varying intensities during each season's growth, and that the production of the various organs depends on the degrees of these vibrations.

PLANTS FOR SHADY PLACES.

BY B. R.

There are not many plants adapted to shady places. Last spring you gave us a few, of which I recollect Periwinkle and the Yellow Moneywort particularly, as we have made a border of them and they have done very well. I do not remember all you named, but we have one here which is admirable, which I think was not in your list. A neighbor had a few plants from England and this came up as a weed in the earth about them; but as it had rather a pretty flower, it was saved, and we had a piece given to us.

An English gardener, who is also a good botanist, tells us it is a *Ajuga reptans*. The leaves are of a glossy green, and no matter how shaded continue to grow. The flowers come up in July,

on a spike about four inches, and are quite pretty, though not gaudy by any means.

Again, I have thought it might do for a basket plant, although this is to be tried. Its trailing habit is good. It would hang over the sides like Moneywort or Saxifrage. Plants which do well in the shade, usually make good basket plants, as our rooms and piazzas are not favorable to more sun loving plants. If you would like a plant, I would send it with much pleasure.

[From what we know of *Ajuga reptans*, which is clearly the plant our correspondent has, we have no doubt of its value both for shady places out of doors, and as a pretty basket plant. Our correspondent we regard as fortunate in introducing this little plant, which as she says is neat if not gaudy.—ED.]

LINES ON THE SEASON.

BY H.

In walking about in the yard to-day,
One may note the Frost King's tread,
In the faded leaves on the maple spray,
And in Dahlias, limp and dead.

Instead of the Heliotrope's sweet perfume,
Are some stems now black and dried.
The sole remains of that purple bloom
Which made it the borders pride.

But the Pansy stands with its monkish face
And Petunias are still aglow,
And Chrysanthemum's buds the eye way trace,
'Till concealed by the winter's snow.
And thus as we walk adown life's hill,
Though summer flowers may fade,
Autumnal buds will cheer us, until
We rest,—in the churchyard laid.

CLIMBING PLANTS AS HELPS TO HOME ADORNMENT.

BY MR. H. T. WILLIAMS.

Read before the New York Fruit Growers' Club.

Country life, with all its charms of beautiful scenery and wealth of foliage, flower, and fruit, growing in endless profusion, needs and receives a heightened effect by rural embellishments around the homes and mansions of the tasteful country citizen.

Our most beautiful shade trees may live a long and unappreciated life in their native habitats, by the running stream of water or in the cool shadow of the surrounding forest; but, transplanted to the meadow of the landscape gardener, or placed along his highways, they become one of the most appropriate of all means of rural embellishment; while the foliage in summer, or the autumn-

colored hues in October, become a source of admiration and appreciated beauty.

The lowly shrub, with all the delicate tracings of its leaves and stems growing by the woodside, graceful, yet unknown and unseen, when transplanted to the lawn of the villa resident, embellishes his grounds and adorns his pathways, betokening taste and refinement.

The grape-vine, growing in the cool soil, stretching far upward into the arms and branches of a friendly tree, spreading its rich canopy of leaves and fruit over the top beyond our reach, is still without an admirer until transferred to the garden of the amateur; where, trained over arbors or summer houses, its rich foliage and fruit hang down in gentle grace, seen, known, and loved, giving both delight to the eye and the palate of him who eats.

COUNTRY LIFE IS FULL OF EMBELLISHMENT.

Every tree that waves in the breeze, or the flower that casts its delicate perfume to the air, the shrub that throws up its long stems, or the grass that forms the spreading lawn, so smooth and beautiful to our sight, is but a natural embellishment, typical of the wisdom and taste of the great Landscape Gardener, who has provided all that is suitable for our pleasure.

But Nature helps man, and man assists Nature; together they fashion flower gardens, they build rustic arbors and summer-houses, and cover them with climbing plants; they put shade trees along our highways to please and comfort; they adapt the tender evergreen to ornamental use in their extended grounds, and with tasteful villas and cottages, conservatories and flowers, they build up together and combine all that is essential to make country life enjoyable in the highest degree.

Rural embellishments include too many departments of rural life to be discussed in a single article—the world so wide and free has no limit to its pleasures; but of them all, what delicate taste and suggestive beauty seem gathered up in the association of climbing vines.

Helps to home adornment we have called them, and the fairy fingers who twine them around their parlor windows, or along the piazza, or on the rustic trellises before the cottage door, can tell you how well they appreciate their value in making home so pleasant.

The motion of the climbing vine as it sways in the breeze is suggestive of poetic associations. At one time, like an ivy, it clings with loving

fondness to the decaying oak which supported it in its infancy; again it runs wildly over a rustic bower, then clings to some gnarly grape vine, again dips its tender branchlets in the sparkling waters of the slowly-gliding streamlet, while the beautiful flower-like golden cups may lead our imagination to believe they are the drinking vessels of the fairies of the woods, and then it dances away in the finest wreaths and natural festoons of mingled verdure and flowers.

CLIMBING VINES ARE NOT A PLEASURE ONLY, BUT A NECESSITY.

Wherever there is an unsightly fence or wall, there exists the opportunity to render it the most beautiful part of the garden. Our new built houses, with all their elaborate decorations and imposing design, are still cheerless until mellowed and softened by the genial touch and presence of Nature. The wood, brick, or stone stand out in angular outlines, bare and hard, and lack the one thing needful to heighten their effect. Let them be wreathed with climbing vines, and let their corners be hid under the delicate foliage or brilliant flowers of the vine, and architecture and Nature combine in harmonious proportions to produce highest picturesque effect. The list of climbing plants is quite extended, comprising over thirty, all deserving complimentary notice; but time forbids mention of only a few, the most useful and popular.

First on the list we notice with special admiration the Scarlet Trumpet Creeper (*Bignonia radicans*). This magnificent plant, wherever sufficiently hardy to grow with vigor, is one of the most attractive of all creeping vines, attaching itself firmly to walls, buildings of stone, brick, or wood, trunks of trees, hedges or arbors; it throws out innumerable aerial rootlets, develops its large, handsome scarlet flower in clusters, and forms a gorgeous sight in late summer, producing a striking contrast with the rich-pointed foliage, and a splendid object when grown on the trellis. I have observed it in Delaware, growing on the sides or tops of the osage orange hedges, throwing out its glossy green leaves, surmounted with its brilliant trumpet-shaped flower, extending for many yards, and eliciting expressions of admiration from the passers by. Downing, commenting on the beauty of the large variety, says:

"In the blossom of the 'grandiflora,' however, lies its peculiar beauty. These are produced in great profusion of cluster, in July and August, so as to give the whole plant an exceedingly gay

and lively appearance. They are not long and tubular, like those of the common trumpet flower, but somewhat cup-shaped. The color is beautifully varied, the outside being a rich, pure, orange scarlet, marked with bright streaks. These gay clusters open their blossoms in succession, so as to keep up a brilliant appearance for a long time; and we are acquainted with no climbing shrub, except the Chinese Wisteria, which at all vies in elegance or brilliancy of effect, in the garden or pleasure ground, with this during the season of bloom. One season we counted over 300 in bloom at once, upon a plant in our neighborhood, and the same profuse display continued a fortnight or more. Any dry, light, well drained soil, suits this climber. It should be made moderately rich; and in such soil, when planted against a wall, it will cover a space twelve or fourteen feet square in two or three seasons. It is well worthy the attention of those who are looking for climbers of a permanent kind to cover an unsightly wall, or close fences, or to render garden buildings of any kind more ornamental by a rich canopy of foliage and bloom."

The Bignonia will be found a little tender in localities north of New York, but can be very easily protected during the winter by tying a layer of straw over the shoots or laying some branches of evergreen against them at the approach of winter. This course, followed for two or three years, will serve to strengthen and harden the wood gradually, after which it will thrive with only ordinary care. In the Middle and Southern States, where it takes on a robust habit, it excels in showy splendor its brilliant efforts here, and fairly glows in midsummer with its thousands of rich orange red blossoms, "like clusters of bright goblets." A remarkable specimen of it existed several years since in Baltimore. It covered a three sided trellis, fifteen feet in height, and the owner one day, counting its flowers and buds, found it to contain fifty-four corymbs, each of which averaged ten flowers and twenty-seven buds; in all upward of 500 flowers, and 1,500 more buds just forming. Few or no climbing plants will bear such comparison with it in luxuriance and brilliant effect. The flowers are borne in clusters; and the buds, just like a half-opened rose bud, are nearly as beautiful as the flower itself.

An additional effect is often gained by mingling the vine with that of the Wisteria, planting them so that the two may twist and twine together. The contrast of foliage or flower is very

pleasing; but growing in its native habitats, along the road fences or covering the hedges, it bursts suddenly upon the passing traveler with its living, fiery bloom, and is ever after remembered with expressions of delight.

Next in beauty, both a living beauty and a beauty even in death, is the Virginia Creeper, or American Ivy, (*Ampelopsis hederacea*). The Virginia Creeper, like the bignonia and ivy, throws out roots at the joints, by which it fastens itself to anything it touches, but is more hardy, more luxuriant and rapid in growth. In its native woods it will be seen climbing rocks and trees to a great height, while in the cultivated pleasure-grounds of the gardener it is made to cover walls of houses forty or more feet in height. The flowers can hardly be called of much value, being of a reddish green color, not showy, and succeeded by clusters of berries of a dark blue color. As the berries reach maturity, the fruitstalks and tendrils assume a rich crimson or red color. It will grow with very little attention or trouble, and only asks to be planted to begin its years of grace. It is less planted than it should be, because confounded by many persons with the poison ivy vine, which it resembles a little. The Virginia Creeper is, however, perfectly harmless, and may be easily distinguished from the poison variety from the fact that the latter contains but three leaflets to a leaf, while the former has five. The greatest charm of the vine is in its foliage, which while green is exceedingly beautiful. If planted in a cool, moist soil, to which it is best adapted, it will climb rapidly, sending off long branches, which sway gracefully in the breeze, or attach themselves to adjacent points and form rich and beautiful festoons of verdure. But the culmination of its beauty appears in autumn, when the foliage assumes the most brilliant crimson hues, and it seems as if it were about to meet its death in a blaze of glory. Even then the effect is best seen when running up the center of a dark cedar; or, climbing frequently on the edge of some compact evergreen, the October frosts change its color in the space of a single night, and the morning finds it shining like a line of crimson fire over the dark foliage beyond or beneath. Emerson, one of our most enthusiastic admirers of forest verdure, says of it:

"The great variety of rich colors—shades of scarlet, crimson and purple—which the leaves and stems of this plant assume, and the situation in which we see it—climbing up the trunks and

spreading along the branches of trees, covering walls and heaps of stones, forming natural festoons from tree to tree, or trained on the sides along the piazzas of dwelling-houses—make it one of the most conspicuous ornaments of the autumnal months. Often in October it may be seen mingling its scarlet and orange leaves, thirty or forty feet from the ground, with the green leaves of the still unchanged tree on which it climbed."

Several years since a Baltimore gardener, possessing some locust trees rapidly being destroyed by the borer, determined to remove them; but there was one tree, standing on the south side of the house, affording a shade to several windows, that he felt could not be dispensed with without great inconvenience. Although the tree could not live long; yet by planting the Virginia Creeper at its foot, and allowing the vine to mantle its dead branches, it would afford some shade until another tree could be reared. The creeper was removed from another location, and replanted with great care; its stem, nearly or quite an inch in diameter, was twined about the trunk and principal branches, to the height of perhaps twenty feet, and moderately pruned. The gardener says that the experiment was so entirely successful that, by being enveloped in the broad foliage of the vine, the tree was saved from the ravages of the insect to such an extent that it lost only a part of its top, and continued to live in fine health. But the creeper grew with the utmost vigor, notwithstanding it was four feet off the tree, and now overruns nearly the whole of the latter, hanging in masses and festoons from the higher branches, a perfect wilderness of foliage. Says he:

"I do not hesitate to say that it is the most beautiful object on the place; its young shoots, with their small and delicate light green leaves forming a remarkably fine contrast to the immense foliage of the darkest green which clothes the old wood. In addition to this, the gorgeous appearance of the whole mass after the October frost, have changed the different shades of green to the most brilliant and varied tints of crimson, scarlet and yellow, is beyond my power of description."

Although I could wish to describe the attractions of the Morning-glory, so common around all our country cottages, or the many climbing Roses, every one a bright particular star of beauty, or dilate upon the exquisite perfume of

the Honeysuckle, still I reserve a choice position for modest worth in the Chinese Wisteria.

The different species of Wisteria, as a rule, are perfectly hardy—grow with great rapidity when well started in rich soil; but, among the six or more varieties known and named, the Chinese (*Sinensis*) has received the verdict of popular preference, surpassing all others in the great development of its stems, and the astonishing profusion of the flowers, and the size of the azure-colored clusters. The foliage is noticeable for its delicate beauty, while the flowers hang in rich purple clusters like grapes. They appear about the last of May in the open ground, but if trained to the rafters of the green-house they will be found in full blossom in March, while the rampant growth seems to occupy the entire space and fill it with thousands of the delicate purple clusters.

There is often a second period of flowering in the late summer months, but the blossoms can bear no comparison with those which appeared in the spring. The flowers appear in racemes or clusters, each raceme six to twelve inches long, and containing fifty to one hundred or more blossoms. The united bouquet, as it really is, is highly attractive and emits a delicious perfume. It is as hardy as the American ivy, grows in almost any soil, will bear a temperature of ten or fifteen degrees below zero, and, if planted in a deep, rich loam, will make shoots twenty to thirty feet long each season. It is easily propagated from cutting or layers, or in a more simple way by taking some of the long shoots of the present year's wood, burying a portion midway between the root and end under the surface, wounding or slitting the bark here and there before covering with soil. If done thus during the month of July, they will root finely by November. Amateurs, after receiving plants from some of the nurseries, have difficulty in inducing an early and vigorous growth, the plants remaining dwarfed and stunted, with little or no disposition to climb freely. This may arise from the possibility of propagation from a downward or impoverished branch; and the only course to be pursued, which in fact is best for all plants, good or bad, to head the vines to a single bud, as near the ground as possible. Make the ground rich, mellow, and deep; this will give them a fair start, and ever afterward will maintain their natural luxuriance. If it is desirable to induce

it to flower several times during the year, the following simple treatment can be observed:

When age has given to the vine a character almost venerable, because of its unusual luxuriance, far surpassing all other plants of a climbing nature, we find here and there isolated instances of specimens which have achieved a wide celebrity. The fine specimen of the Wisteria in Europe is trained upon the walls of the London Horticultural Society, where it occupies a space *three hundred and seventy-five feet* in length. Downing, who seems to have been a special champion in its behalf, describes it as the "*loveliest of all vines*," and speaks of one that covered the side of a small cottage completely.

"Imagine a place of 10 by 20 feet completely draped with wisteria shoots, on which hung, thick as in a flower pattern, at least 500 clusters of the most delicate blossoms, of a tint between pearl and lilac, each bunch of bloom shaped like that of a locust tree, but eight inches to a foot long, and most gracefully pendant from branches just starting into tender green foliage—if you could see all this as we saw it, you could not fail to utter exclamations of delight."

The noblest specimen we can call to mind at the present time in this country may be seen at the corner of Second avenue and Seventh street this city. It is planted at one end of a large brick house, which forms the corner, but has grown with such amazing rapidity that it not only covers the front of the house to the roof, but an arbor over the steps, the entire side of the house on the cross street, and likewise the entire side of a house in the rear, an area of 10,000 square feet, a curiosity of unexampled merit. It is trained gracefully, and is preserved with the tenderest care by the owner, who appreciates its value; but when in bloom it is such an object of splendor as to excite the wonder and admiration of the passer-by.

May you all enjoy your vine-clad arbors with care and love, partaking of

"That banquet
Ever spread before you, in a hall
Of H. aven's own building, perfumed with the breath
Of Nature's self, and ringing to the sounds
Of her own choristers."

EDITORIAL.

NEW VARIETIES WITHOUT SEED.

It has long been obvious to the writer of this, that it is not alone by seed that nature produces new forms. He has often made the suggestion in scientific circles, because circumstances are often met with in nature, which seemed unaccountable on any other theory. But scientific men are not satisfied with circumstantial evidence. They must have the direct facts themselves.

Slowly we have been gathering these facts. There is, to be sure, the long standing case of the Nectarine. It was said this sprang from a branch of a Peach tree; it is generally believed to be a fact, but the date and time, and the first observer are unknown. There is therefore not the "authority" for the fact, so necessary to a scientific man.

We will pass over many things we have noted which would only interest the botanist, to those facts in horticulture which any of us can appreciate. Take the Potato. We sometimes find a white potato in a hill of red ones, or a red one in

a hill of white. Here say we is a case in point. A new variety has been developed without seminal intervention. But the hard headed botanist disputes it; he charges that the theory is assumed, which is a very wrong thing to do. That most probably the pollen of a white kind impregnated the pistil of a red kind, and that somehow the influence was felt right down amongst the tubers. But is this not also assuming things? An assumption of the most baseless character? But let this rest until we get other illustrations.

There happened at Philadelphia, during the last meeting of the Pennsylvania Horticultural Society, to be collections of Pears from many different parts of the country; the same varieties, but grown in places widely apart. All of these had *especial characters of their own*. Those from Rochester had *very long stems*. Everybody could tell a Rochester Pear by the length of its "leg." Certainly this is not brought about through seed.

But how about the permanence of these variations? To be of much account as varieties

they should be able to maintain a separate existence when removed to other places. Well, the evidence is in favor of their permanence.

It is well known that the Isabella grape grown about Reading, Pa., is not the same as other grapes grown elsewhere of the same kind. It is also a fact the Reading Isabellas retain these special characters when taken to other places. Yet this variety is not a seminal development, but a bud evolution.

So with the Penn apple; this has characters which readily distinguish it from the *Baldwin*,—yet the first one was found among a lot of Baldwin trees; yet it is clearly like Baldwin, and was certainly not another kind accidentally mixed in. It also retains its distinctive characters when propagated. Is the *Stark* another such development from *Pennock*? Its history is not known as a seedling. On this, however, we will not dwell now, as we are dealing with ascertained facts.

This fall a friend brought us a fruit of his *Duchesse* Pear; passing one of our own trees, we gathered one of our own. Our friend's was characteristic; the sweet sugary juice was as it always is. To the surprise of both of us, the Pear from the writer's tree was of a delicious subacid. Only for the coarseness of the flesh, one might suppose he was eating a *Beurre Superfin*. Is not the frequent cases of sweet and sour apples on the same tree analogous to this? These two were undoubtedly *Duchesse d'Angouleme*, yet how wide the difference!

But here we have before us, through the courtesy of the Editor of the *Prairie Farmer*, the most conclusive evidence that new forms can arise without the intervention of floral parts. This is a stock of Sweet Potato, on which tubers of the *Yellow Nansemond* and the *Red Brazilian* are formed on the same stem. Now no mixing through the floral organs can occur in this case, because it does not flower here, nor is there any way by which any "mixing" could occur. It is a clear case of bud variation,—a development of a distinct variety, independent of any cross fertilization. There are other reflections in connection with this instance. We have in cultivation some ten or twelve varieties of Sweet Potato. But even in the Southern States this plant rarely produces seed under cultivation, and we have never known of an instance where any attempt was ever made to raise them in this way. There is little doubt all the varieties under culture are

mere bud developments, as in this instance;—showing at once, not only the possibility of new forms originating this way, but of their subsequent permanence when under propagation.

THE MARTHA GRAPE.

(See Frontispiece)

Whoever undertakes to write a history of General Washington, gets little sympathy with the reader, unless he brings in the salient points of the great man's youth, particularly his love of truth, and more especially the gallant episode of his peaceful but determined efforts to stop the fighting between two rowdy boys. In like manner we suppose it will never do for us to say a few words on American grape history, without bringing out in full relief the aged forms of Major Adlum, Mrs. Isabella Gibbs, or Mrs. Diana Crehorne. But notwithstanding all that is due to them and others like them, as prominent actors in the early times of American grape history,—it is scarcely to be doubted that the great popular movement in grape culture dates from Mr. Bull and the Concord Grape. Inferior as this may be in some respects,—superior as many others doubtless are, here is, at any rate, the great tidal wave which overflowed the land, and left in its course a rich drift by which all at length profited. Thousands have had fruit, who never would have had a taste but for the Concord grape. Great honor is due to those who have entered the improving field. Brocksbanks, Grant, Underhill, Moore, Arnold, Miller, Rogers, Wylie, Allen, Raabe, Crans, Haskell, Parker, Merceron, Rutter, Campbell and Bailey, whose names occur to us as we write, besides others equally well known, who have either spent much time in experimenting, or have done much to introduce some good kind, deserve well of their country. But to Mr. Bull the great revulsion is due. He is the great patriarch of modern success.

We have often thought how nice it would be to the manly Concord, if it only had some sisterly fruit of the light complexion to share its popularity through the length and breadth of the land. So far few have offered, and indeed there seems to be some natural law against it. Our whilom correspondent, Dr. Stayman, whose philosophic pen once so ready to aid us in cultivating the mind of horticulture, now lies rusting in the ink horn, showed conclusively in one of his able articles, that we could never expect a light fruit to equal a dark one in hardness and endurance.

Yet on looking around on all the competitors for a place with Concord, we do find in *Martha* one the most near to it. White grapes are always popular. There is a delicacy of flavor in them which the dark ones do not possess. *Martha* combines more good qualities than any other. It is the best white grape, so far as has been generally tested over a wide expanse of country. It is now going through the same ordeal the Concord stood. We know how many supposed their throats injured by eating these "foxy things," who afterwards came to thank the day which brought Concord forth. It is so with *Martha* now; and it will end the same.

Martha is a Pennsylvania seedling. It was raised in Lebanon, by Mr. Samuel Miller, one of our most enthusiastic fruit experimenters, and now of Missouri. It is, however, to the labors of Messrs. Knox and Campbell that the public owe much knowledge of the merits of this grape. These gentlemen are well known to the community for the care which they take to be sure of the merits of a fruit before sending it out. They may for all this be mistaken, but if so, it is always in honesty and good faith.

SCRAPS AND QUERIES.

BIG AUSTRALIAN TREE.—In Mr. Harding's article "In the gloomy shade of antipodian forest," should read forests. We are sorry for these little slips, but it is the fate of all writings where, as in magazines and newspapers, it is not often that an author can correct his own proof. We are promised some more from Mr. H.'s agreeable pen.

RED MAGNOLIA.—Mr. Manning of Harrisburg, Ohio, writes: "In my article in the last *Monthly*, strike out the word *purpurea* and insert *rubra* in describing Magnolias, as the way it reads; it is an error in the type setter, and makes me recommend a Magnolia in the highest terms I never mentioned. The flowers being whitish and purple, and generally of a rather muddy color. It would only mislead planters."

[This comes all of an Editor "knowing too much." We did not know there was a variety called *rubra*, and hence took the liberty of correcting what we supposed to be an error. We have here two varieties of *purpurea*, one of which is purple and called *purpurea*; the other *gracilis* which is light. The *rubra* we have never seen.]

THE HORTICULTURIST.—We were favored recently with a call from Mr. H. T. Williams, the Editor of our fellow laborer in gardening literature, the *Horticulturist*. This is the oldest of all now in the field; and it gave us great pleasure to hear from Mr. Williams that it is in a most prosperous condition. He has our best wishes for its continued success.

THE NILES PEAR.—This is not an American Pear, only an American name. It was received from Bordeaux in France, and its name lost. It has never yet been identified with any known French kind. Niles is the name of a gentleman at New Haven, who has the tree growing. It is a very showy fruit, larger than *Easter Beurre*, though not quite so good as that popular old kind; but it has the merit of ripening easier.

A JAPAN TOY.—B. M., Pittsburg, Pa., asks: "In a social circle, recently, a question occurred as to what was the nature of the wood used by the Japanese in the little toy now so common, in which a small piece of magnetic iron is set, which on being placed in the hand or on a table, sets itself erect. An opinion was given that the wood is from the rice paper plant of Japan. Is that so? It does not look like wood at all."

[It is not wood properly, but pith,—the pith of the *Kerria japonica*, the common "Corchorus," which is so well known in every old garden by its double yellow flowers. Though not in our "province" exactly, we may add that there is nothing "magnetic" in the iron. It stands on end just as a top would do, because the lower end is the heaviest. It simply finds in this position its "centre of gravity."]

VARIATIONS IN THE VICAR OF WINKFIELD PEAR.—We have some specimens of this variety from Dr. Potter of Bridgeton, N. J., which are very remarkable in connection with our recent article on fruit variations. These are of a

beautiful rosy red, with patches of russet, and golden yellow intermixed. At first glance, any one would take them for *Beurre Clairgeau*. Other characters, however, independently, of the positive knowledge, stamps it as undoubtedly a Vicar of Winkfield. It would be interesting to propagate from this sporting part of the tree, and ascertain whether it would retain this beautiful character under other circumstances.

A BEAUTIFUL FLOWER PICTURE.—We are not in the habit of holding the mirror to our own beauty. But they tell us our colored plates are perfection in their way. We never expected any one to attempt to excel them. But now comes a young man from Rochester by the name of Vick, who has not only the temerity to attempt to rival us, but has the audacity to lay one of his beautiful flower pieces right on our table, in full view of our astonished eye sight!

* * * * * If our friends won't let us know
That they are alive,—they're dead, or should be so."
This is Vick's maxim. Everybody in the United States knows that Vick's alive. What is more, they are glad that he is. Certainly we are, notwithstanding this powerful attempt to crowd us down with beauty.

MR. WRIGHT AND TEXAN BOTANY.—"In the last number of the *Gardener's Monthly*, is a notice of your humble servant, which somewhat shocks his modesty. I dare say my good friend supposed he was only doing me justice, and yet he has overdone it. That I gathered "hundreds of unclassified specimens" I have no doubt; but there is a great difference between that expression and "hundreds of unclassified species," which is what the writer probably meant. If the "botanist at Cambridge paid a thousand dollars" for them, I have no recollection of the transaction; yet I suppose I received a fair remuneration for my labor. Again, when he says "there is no man living so thoroughly, &c.," he does me honor overmuch. Local Floras like that suggested by the writer, are of comparatively small importance; but a general flora of North America it is hoped will come from abler hands than mine.

Yours truly,
CHARLES WRIGHT."

Cambridge, Nov. 14th, 1870.

DUTIES ON SEEDS.—A Waukegan, Ills., corres-

pondent asks: "A seedsman in Canada writes me that the duty comes off of imported seeds after the first of January. I thought he was mistaken, and asked our Congressman, Farnsworth, yesterday. He thinks it is so, but is not certain, would look and see. How is this? Dahlias, Verbenas, &c., in bloom here; autumn leaves in their glory."

[All a mistake. The only duties on seeds taken off last session, were for seeds imported for the use of the U. S. Botanical Garden or Agricultural Department, at Washington. For all others, the duties of 30 per cent. on the gold value still remains.]

BOUVARDIA VREELANDII.—"Dear Sir: I suppose you recollect the flower of my white Bouvardia Vreelandii which I sent you last December, and which you noticed in your January number, 1870, of the *Gardener's Monthly*. You said it was very dry, so that you could scarcely tell what it was. As I have a number of plants of the same now in bloom, I take the liberty to send you a few more flowers, which I hope will reach you in better condition than the others did. You say (in your January No., 1870, page 20) "it appears to be a white variety of *B. leiantha*." That is a mistake. It is a white variety of *B. Hogarth*. It is a free grower, and blooms very profusely, and has very large trusses of flowers, and I have no doubt will rank at the head of our white winter flowering plants.

S. B. VREELAND,
Greenville, Hudson Co., N. J."

[These came in excellent order. It is a beautiful variety, and will be highly appreciated by florists. We are much obliged by this account of its origin.]

NAME OF PLANT.—"Subscriber," *Memphis, Tenn.*, says: "I send you a small piece of a plant which here is a native shrub, covered during winter with the red berries of which a few are attached. I suppose it belongs to the *Rhamnus*, but not being certain, will feel greatly obliged by your giving it its true name."

[*Rhamnus lanceolatus*, a pretty shrub, well worthy of being introduced into our gardens.]

LIME AND SULPHUR VAPOR FOR PLANTS.—*G. N., New Providence, Ind.*, says: "In the *Gardener's Monthly* for August, I find a Horticultural Essay by Mr. Podbury, in which, among other things, he treats of mildew, or white

fungus upon roses, and says that a vapor of quicklime and sulphur, in the proportion of about 14 pounds of fresh lime to one pound of sulphur, will effect a cure.

Now, Mr. Editor, I have some roses, verbenas and geraniums, in the same house. The verbenas are a little troubled with fungus. Would Mr. Podbury's remedy cure the verbenas without injuring the geraniums? Please state in your next *Monthly*."

[We have no doubt this vapor would be as well for other things as roses. We have here no personal experience with it, and should be glad if Mr. P. will favor us with his opinion for our correspondent. Mr. P.'s experience is particularly valuable, as he is one of those who proves his faith by his works; and which fact it was indeed which gave so much value to his paper. As foreman to Messrs. Maxwell & Bros., at Geneva, his magnificent roses are well known.]

NEW NURSERY AT NEW BRUNSWICK, N. J.—Cherry Lawn Farm, is the name of a new institution in New Jersey, the catalogue of which we find before us for the first time.

POSTAGE ON SEEDS, PLANTS, &c.—Many do not seem to know that all writing in a box of seeds or plants subjects the whole thing to letter postage. We have had several heavy bills of this kind lately to pay. Send particulars of the enclosure in a separate letter.

ROCKY MOUNTAIN EVERGREENS.—James T. Allen, of the *Omaha Herald*, an enthusiastic agriculturist, horticulturist, pomologist, &c., and member of the State Board of Agriculture, after repeated solicitations, has gone to the Rocky Mountains, for the purpose of collecting a few thousand specimens of the various Rocky Mountain Evergreens.

LAWNS.—We call particular attention to the short article on Lawns by Mr. Sargent in another column. So recently as the time of A. J. Downing, it was feared that we should never be able to bear any comparison with England in this beautiful feature of its Elysian gardens; but the progress of the few past years, led by Mr. Sargent's illustrious example, has been wonderful,—so much so as to attract universal remark. Mr. Robinson recently said to the writer that he came here with the impression that America could have no Lawns, and was astonished at

their great beauty, and this, be it remembered, after the driest season on record. With such critical observations of cause and effect as exhibited in the notes of R. H. N. and H. W. S., we must in time adapt our climate to as perfect a lawn as any other climate can boast of.

RHODODENDRON, PRINCESS HELEN.—Mr. G. Such, South Amboy, N. J., sends us the following note: "I send you by mail this day, a cluster of the hybrid Rhododendron, 'Princess Helen.' There is very little chance of its reaching you safely, but I hope it may, knowing that it will please you."

[On the contrary, it came in most admirable condition, with nothing but a little damp paper about it, in an air tight tin box. It is probably an hybrid between an Azalea and a Rhododendron. The tube is narrow, waxy white, about two inches long; and the limb, composed of the usual five petals, about one inch across, and of a pearly pink. There are a great many flowers in the tuss. It is a beautiful thing indeed, and gave us great pleasure.]

DEODAR CEDAR.—A correspondent of the *Country Gentleman* writing from Clarksville, Ga., says: "In the mountain regions of Georgia it is the most beautiful tree we ever saw, and without a single fault. We have two of them on our grounds which were planted out some sixteen or eighteen years since, and were at that time one foot in height; now, they are between thirty and forty feet, with trunks some ten to twelve inches in diameter at the ground; the spread of the limbs at the ground is probably about twenty feet; they are Alpine in growth, the branches sweeping on the ground with a heavy shaggy foliage; the annual growth in height has been about two feet; they bear an abundance of beautiful cones, but I have never been able to discover any seeds in them."

MR. BARRY'S PAPER ON LAWNS.—The Philadelphia *North American*, in a kind notice of the *Gardener's Monthly*, pays the following well merited tribute to Mr. Barry's essay on lawns, which recently appeared in our magazine:

"The November issue follows its timely hints with directions for pruning, forcing fruits and vegetables, and with an admirable paper at once æsthetic and practical, on lawns. The argument covers only the making; leaving planting

to the future. Those of our citizens who have visited Europe, and particularly those who have visited rural and suburban England, understand how very far our best lawns are from being what they may be made, and how much a fine lawn contributes to the beauty of any residence, and what many such do for a neighborhood. Mr. Barry's paper is in the right line, and shows how to achieve the preliminary portion of what it appropriately commends. It should be read and utilized in all West Philadelphia, Germantown and Chestnut Hill. Mr. Meehan discusses fasciation in plants, and concludes that it is always incident to a low stage of vitality, as adnation is to the highest vigor. The subject of sex in plants is involved. The grass tree of Australia is described and figured, and there is a profusion of other knowledge that is seasonable and desirable."

OUR ANNUAL TITHES.—Messrs. Ellwanger & Barry sent us a box of beautiful pears. We seldom eat pears more juicy, sugary, delicious, and in every way acceptable, than those our good friends send us. We make no claim for tithes as has been the custom in other countries, and hence the voluntary offerings of our good friends of the Mount Hope Nurseries render us their debtor.

HARDINESS OF LATE LEAVES.—Mr. E. Van O., Naperville, Ill., says: "In November No. of *Gardener's Monthly* you say, 'but in a healthy tree that one will get through the winter best which retains its leaves the longest.' Now I notice in the nursery, that of all different varieties of apples, the Red Siberian Crab is the only one that has shed its leaves, while all others retain them, and there is no late growth either. Then, according to your views, this hardy tree would be injured by cold sooner than the Rambo, Maiden's Blush, etc. I believe you are wrong this time."

[We are much obliged by this note, as it

NEW AND RARE PLANTS.

PARSON'S NEW WHITE MIGNONETTE, RESEDA ODORATA EXIMEA.—This new and lovely Mignonette will be an universal favorite; it is so much superior in odor, habit and color—being nearly pure white—it cannot fail to be grown in

shows we did not put the case before so as to be understood. We did not compare one variety with another variety; but one of the same thing, with another of the same thing. For instance, our former correspondent referred to one Silver Maple which was green, and to another Silver Maple which was not. To make the analogy exact, E. V. O. should take one Siberian Crab with another Siberian,—and more, both should be the same variety of Siberian Crab. Or if he will take a Rambo apple which loses its leaves in September, and compare it with a Rambo which holds them till October, he will get our idea correctly. Perhaps we are wrong for all this, but think not. We shall be glad to hear from others.]

THE BUCKS COUNTY INTELLIGENCER of Doylestown, Pa., after quoting some matters, thus speaks of our November number. "This information, and we might make much more of it, we compile from the November issue of Meehan's *Gardener's Monthly*, which is one of the most welcome of the many periodicals received at this office. We find it always reliable and instructive, and not so much given to hard names and fine writing as to make its articles intelligible to the general reader. The growing taste among our country people for horticultural occupations will find in the *Monthly* a safe and progressive guide. We charge Meehan nothing for saying so, and our advice that it should be widely circulated is entirely disinterested."

THE SMALL FRUIT RECORDER AND COTTAGE GARDENER.—This thoroughly practical paper sticks to facts as its best friend. It increased circulation, which we are pleased to note from the increased value of our advertisement therein, would indicate that facts in the grateful return are sticking to it.

preference to the other variety; the spikes are large and beautifully shaped, and one pot of it will perfume a whole house. There are many plants advertised, eulogised, and sent out to the public as something very superior, when they

are no better than existing varieties.—*Cor. of Gardener's Chronicle.*

COTONEASTER SIMONDSII.—This is a beautiful hardy evergreen shrub, with glossy dark-green leaves, and bearing a large quantity of scarlet berries, which ripen later than the *Berberis Darwini*, and will hang all winter.—*Gardener's Chronicle.*

ERANTHEMUM ELEGANS.—This plant well deserves the name under which it was exhibited at one of the recent meetings of the Floral Committee, at which it received a First class Certificate. In the arrangement of the flowers and general habit, it is much like *E. albiflorum*, Bot. Mag. 4225, but in the construction of the corolla it is much more like the old *Eranthemum bicolor*, or that form of it figured (Bot. Mag. tab. 5711) as *E. aspersum*. In habit and inflorescence again it is exceedingly like some of the varieties of *Eranthemum crenulatum* of Nees (D. C. Prod. xi. 445), but the flowers are much larger, and of a different form. Our present plant, then, may be readily recognized by the following

characters:—Stem swollen above the nodes, flowers numerous in long, terminal, leafless, cymulose spikes or panicles, with salver-shaped corollas, having a two-lipped limb, the lower lip largest and prettily spotted with purple or claret-colored spots. The anthers are purple, and project beyond the corolla tube.

The history of the plant given by Mr. Bull is that it was obtained from Trinidad by the Right Hon. Maziere Brady (through his friend the Hon. Horace Fitzgerald, one of her Majesty's judges in that island). We think it most probable that it is really of Indian origin, and introduced from that country into Trinidad. At any rate neither in herbaria nor in books do we find the plant named. It is certainly a very pleasing stove plant, its blossoms being freely produced on small plants, and borne on axillary and terminal spikes, the latter some 8 or 10 inches long. There is, as Mr. Bull remarks, a remarkable succession of flowers: as soon those first developed go off, others again and again supply their place, so that the spikes continue in beauty for weeks.—M. T. M., in *Gardener's Chronicle.*

NEW AND RARE FRUITS.

WESTON BLACKBERRY.—We are indebted for a box of these berries to Adain Durkes, of Weston, Mo., with whom they originated. He says "They begin to ripen from the 20th to the 25th of July, and continue maturing until now, (August 29th,) always enough to make picking an object. I have tried other varieties, the Lawton and Newman's, and to-day, after many years of experience, consider the Weston much more productive." The berries came by mail, and were too much bruised for us to judge of their merits, but we hope to hear from them after another year's trial.—*Western Gardener.*

FOSTER PEACH.—Originated with J. T. Foster of Medford, Mass. First illustrated in Tilton's *Journal of Horticulture* for November, 1867. I have carefully examined the tree in bearing for three years, and am free to say that I believe it to be as hardy and productive as Early Crawford (which it very much resembles) and more than double that well known variety in size. Indeed it is the largest peach of which I have any knowledge. At the exhibition in 1869, owing probably

to the drouth, it was not as large as before, and since, the tree has been accidentally destroyed. The Massachusetts Horticultural Society say in their last report,—should it prove as good in other locations as with Mr. Foster, it will be worthy of the Society's highest premium for any new fruit. Mr. J. F. C. Hyde, President Mass. Hort. Society, says, "Such peaches would readily bring twenty-five cents each in the Boston market." Mr. Robert Manning of the *Journal of Horticulture*, says, "It is in quality fully equal to Crawford." One or two young trees have borne the present season, and in appearance came fully up to the original.—T. C. THURLOW.

IVES' BLOOD FREESTONE.—A seedling raised by Mr. John M. Ives, of Salem, who thinks it better than other Blood Peaches, being more productive, and darker (almost black) to the centre. His tree has borne heavily each season for the last eight years, and the fruit has sold at \$8.00 per bushel for preserving. If scalding water is poured on the fruit, the skin can be easily wiped off with a cloth.—T. C. THURLOW.

DOMESTIC INTELLIGENCE.

BOUVARDIA DAVISONII.—We have before noticed this beautiful plant in our magazine. It was obtained by Mr. Davison from B. Hogarth. As we understand, it was a branch of Hogarth which produced a white flower, and not a seedling, which has some interest in connection with the cases of *Trillium* and *Wistaria* recently noticed. It is a remarkable fact that plants with variegated leaves which originate as sports from green leaved ones, will not come true when raised from root cuttings. A root cutting of a variegated plant as far as we know, produces but green leaved plants. It was supposed by some good florists, that on the same principle root cuttings of this *Bouvardia* might produce the original Hogarth. This would be against its value, as there is no way to raise *Bouvardias* rapidly except by roots. But we are pleased to say we have now before us a specimen raised from a root which has the white flowers, so this question is settled. The *Bouvardias* are amongst the most valuable of our winter flowering plants. A good white will be particularly so. Mr. Davison we think has met with a little fortune in his lucky accident.

WASHING THE BARK OF FRUIT-TREES.—No time should now should be lost in washing the trunks of all fruit-trees with some solution to soften the bark, destroy insects which harbor under its rough surfaces, and thus enable it to perform its office, admitting the descent of the sap. Where it is scaly, hard, and impenetrable, as we often see, especially in old trees, this sap is impeded in its course, and becomes congested; an unhealthy condition of the tree results, and the fruit is knotty and imperfect. Insects also are much more liable to attack both tree and fruit in an unhealthy condition of the bark, or, indeed, of any other of its important organisms.

On the farm no cheaper and more effective remedy is at hand than a mixture of equal proportions of soft soap and lye. Give one or two applications, according to circumstances, to the body of the tree, as high as one can reach, and to where the branches fork. One pound of potash dissolved in a gallon of water will answer the same purpose. Apply with a whitewash brush, and in hard cases we have often used a hand-scrub. The bark of a tree should be soft and pliable, so as to be easily indented with the finger-nail. Avoid whitewash in all cases, not only as a matter of taste, conveying the idea of

whited sepulchres and graveyards to an orchard, where there should be only the most vigorous life, but also because in our observation, it makes the bark hard, when it is wanted to be softened. It should certainly be borne in mind that no tree can bear fine and perfect fruit which will sell well if it is unhealthy or unthrifty from any cause. Vigorous, healthy life, constant thrift, should be the watchword for fruit-trees; and this requires the most unremitting care of the fruit-grower.—*Practical Farmer.*

PEACHES IN HANGING BASKETS.—Mr. A. C. CHAMBERLAIN, Brooklyn, N. Y., has, the past eight or ten years, been experimenting in growing fruit trees—such as peaches, figs, nectarines, &c.—in hanging baskets and pots. He plants a yearling tree in a zinc basket, which is filled with moss, which Mr. Chamberlain claims, has been chemically prepared with the necessary elements for the growth of the tree. These zinc baskets are of various sizes—from six inches to a foot in diameter. The moss rests on a perforated plate, which fits into the kettle-shaped bottom of the basket, two or three inches above the apex, thus insuring a chamber into which there is drainage without loss of water. In some of the baskets a funnel extends into the chamber, and the water is supplied to it direct; but Mr. Chamberlain has found that dipping the basket in water once or twice a day is equally as well for the plant.

The secret of success, it is claimed, lies in the chemical compound or fertilizing material used. That is Mr. C's secret. What that costs per pot we don't know; what it costs per tree to keep it a year, we do not know; how much fruit a tree will produce annually after it commences fruiting, we do not know. As a rare thing, as a fancy, it is not a bad one to grow peaches in pots in a common plant house. They are kept in a deep pit outside until wanted for forcing the fruit. It is very nice to be able to hang over one's dining table a basket of fruit growing on a tree, and pluck it fresh therefrom. That it can be done Mr. C. has proved. That it can be made profitable to supply fruit to tables in this way, is yet to be established.—*R. New Yorker.*

A MAMMOTH BLACKBERRY ENTERPRISE.—One of the most interesting calls we have made this year, was to the great Blackberry patch of John S. Collins. The following from the *Practical Farmer* gives an excellent idea of things as we saw them:

We visited about the middle of the past month

approaching but not quite at the height of the picking, the large Blackberry patch of our friend John S. Collins, near Merchantville, New Jersey, about four miles from Camden. It comprises 75 acres, all planted in Blackberries, and now bearing profusely, but far yet from being up to its maximum production. They were planted mostly 3 and 4 years ago.

The day of our visit, 7,000 quarts had been picked; 14,000 quarts were fully expected the day following, which would be a full day's work for the hands employed, who, when we saw them were quietly resting or lounging about under the shade of trees, and recruiting for the morrow—7,000 quarts being about half a day's work. A visitor to this patch would at once be satisfied, that there is many a homely adage less truthful than the very trite one, "as plenty as Blackberries." Here were 75 acres occupied with nothing else than Blackberry plants—thousands of the bushes bending nearly to the ground under their weight of fruit. The rows were 8½ feet apart, and the plants 4 to 4½ in the rows. The tillage had been excellent, no weeds at all to be seen, for the simple reason, we presumed, without asking the question, that the berries brought a better price in the market than weeds, and the proprietor being essentially a practical man, had given the strength of the soil and the labor of cultivation to the crop which brought in the most money. People's mental organizations differ widely, as also their reasoning processes and conclusions. This was indicated by a field adjoining the Blackberries, where the owner had evidently concluded, that the crop for him to raise was mullens. We have seen no mullen crop equal to them this season, and think we never saw a better one anywhere. They had grown six feet high, without any expense of cultivation. The inference we drew was, that a mullen soil was also favorable for Blackberries.

By far the largest portion of the Blackberries were the variety known as Wilson's Early. This seedling, of a few years since, ranks in importance with the Philadelphia Raspberry. It is the best blackberry out, has been tested thoroughly, differs from the Lawton in being ripe when black, is of good size, melting and juicy, which with its earliness, being the first in the market and treading closely on the heels of the Raspberry crop, always secures the best price.

J. S. Collins was receiving 20 cents per quart, wholesale price, at the time of our visit, which,

with 14,000 quarts, make the round little sum of \$2,800 for one day's picking. Can the mullen grower show as large a record?

One of the most interesting features of the business, to us, was the quiet, thorough and systematic manner in which everything was done. Each row had a marked stake at the end. Hand A undertakes to pick rows 55 and 56,—was so marked by the clerk in his book—and they were required to pick them clean, and to go back if they were not so. The price paid for picking was 1½ cents per quart, and a constant supervision being exercised over the work, the hands soon discovered it was easier to pick a row thoroughly than to have to go back. Very few cases occur where they are continually careless as to require to be discharged. The average is 100 to 150 quarts per day to each hand, but they sometimes run up to 200 quarts per day.

While a harvest was being evidently reached by the intelligent and far seeing projector of this Blackberry patch, it was also no less a Blackberry festival for the hands employed. On enquiry where they were from, we were surprised to find them to have come mostly from that aristocratic (?) portion of Philadelphia, Bedford street. Is it possible, thought we, thus to utilize Bedford street. Here were one to two hundred hands employed, of what is known as the very scum of creation, men with their wives and children, gathered about in clumps; and in passing among them, we did not hear a profane or improper word, all quiet and orderly. The change from damp and crowded cellars and filthy dens and alleys, to the green grass and pure air and beautiful trees of the country, where all nature was pleasant, and the birds sang merrily, most evidently impressed, and reached the latent spark of these depraved specimens of humanity. As they stay over the Sabbath, what a place and an opportunity for those rightly qualified to give religious labor for operating on such a class.

As the filled boxes are brought up to the clerk, 3-ct. or a larger denomination of tickets are given out, which are always good for the money whenever asked for. The ticket system undoubtedly induces them to save till toward the end of the season.

A large open shed is erected, with rough tables and benches, which may be called the restaurant, where plain meals are cooked, and provisions sold, of course with the entire absence of intoxicating liquors. The barn as well as shan-

ties erected about, are used to lodge in; and there can be no doubt the hands return, when the season is over, improved in mind, body and estate. We think those who have charge of

large pauper population of great cities might derive a valuable hint from what may be seen at such a place as Collins' Blackberry pickings, and of how a refuse population can be utilized.

FOREIGN INTELLIGENCE.

PELARGONIUMS—It is now impossible to determine the parentage of the Show and Fancy Pelargoniums. In Sweet's time a great many hybrids were figured and described by him and others as garden varieties, and it is from those hybrids that our present race of cross-breds have sprung. *P. cordatum* is certainly not unlike many of the Fancy section, and *P. cucullatum* some of the Show kinds, but we know nothing positive. Pelargonium zonale is a distinct species cultivated in botanical collections, and it is not unlikely that the species you have from South Africa may be it. We think your proposed crossing will give some curious results if it should prove successful, which we very much question. It is, however, well worth trial.—*Cottage Gardener*.

HOW TO PROPAGATE BEDDING GERANIUMS.—The most general cause of failure in propagating bedding geraniums is over-attention. The cuttings are put thickly into pots, and then placed in a frame, shut up close, and sprinkled overhead once or twice daily, and then results of the system are the loss of about two-thirds of the cuttings from "damping off." Instead of all this fuss and trouble, prepare the cuttings in the usual way, dibble them rather thickly together in a yarm sunny border in the open air, and then either leave them alone until they are rooted, or at the most sprinkle them overhead about once a week. When rooted, they can be taken up and potted in whatever way is the most convenient. The simplest and a very desirable way of potting them up for the winter, is to put three cuttings in a three-inch pot, and then they can be potted off singly some time in either February or March. When potted singly in the autumn, the whole of the nourishment in the soil is exhausted before the planting out time, and the growth is, as a matter of course, brought to a standstill; but by managing them as here advised they continue to make steady progress throughout the season, and

start away freely when put out in the beds. When pressed for time, I have the cuttings put in small pots, three in each, and placed close together upon a bed of ashes in the open air. This plan saves the labor of potting up the cuttings when rooted, but it is very seldom that such a large percentage will strike as when put out in the border. Take them up with a fork immediately the roots are about half an inch in length, or as soon as possible.—*Gardener's Weekly*.

ROSES FOR FORCING.—No flower is more popular or more useful than the Rose, whether as standards by the sides of promenades, in beds or masses, festooned about pillars, or enlivening the conservatory in the depth of winter. For all these purposes Roses demand a considerable share of attention, especially at this period. Budding, cutting-striking, final potting, &c., are processes of paramount importance at the present moment. The Hybrid Perpetuals, Teas, Bourbons, and Chinas are the most eligible classes from which to select kinds for pot culture. The following are good old kinds for a winter collection on account of their general utility:—Devoniensis, Cramoisie Supérieure, La Pactole, Caroline, Elise Sauvage, Comte d'Eu, Coupe d'Hebe, Prince d'Esterhazy, William Jesse, Princess Maria, Clara Sylvain, Auberon, La Reine, Madame Laffay, Duchess of Sutherland, Earl Talbot, Belle de Florence, Bourbon Queen, and Crimson Perpetual. The Persian Yellow and Harrisoni have also been found to force very well.—*London Journal of Horticulture*.

SPONTANEOUS GENERATION.—Dr. Bastian in "*Nature*" thus sums up the substance of a paper on this subject:

"My principle objects in this paper have been to show:—

"1. That there is a strong *a priori* probability in favor of the possibility of the occurrence of the

heterogenous evolution of living things, and that the most reliable scientific data which we possess do, in fact, fully entitle us to believe in this as a possibility.

"2. That microscopical investigation, whilst it teaches us as much concerning the mode of origination of the lowest organisms as it does concerning the mode of origin of crystals, enables us to watch all the steps of various processes of heterogenous evolution of slightly higher organisms, such as may be seen taking place in a pellicle on a fluid containing organic matter in solution.

"3. That the kinds of organisms which have been shown to be destroyed by a temperature of 100° C. may be obtained in organic fluids, either acid or alkaline, which, whilst enclosed within hermetically sealed and airless flasks, had been submitted not only to such a temperature but even to one varying between 146° and 153° C. for four hours.

"4. That a new and direct evolution of organizable compounds may, in all probability, be capable of arising, sometimes by isomeric transformation of the atomic constituents of a single saline substance, such as tartrate of ammonia, and sometimes by the re-arrangement of the atomic constituents belonging to two or more saline substances existing together in solution. It is not only supposed that this may occur, but that even living things may be subsequently evolved therefrom, when the solutions have been exposed, as before, in airless and hermetically sealed flasks to a temperature of 146 to 153° C. for four hours.

"On account of this *a priori* probability, and in the face of this evidence, I am, therefore, content, and as I think justified in believing that living things may and do arise *de novo*. Such a belief necessarily carries with it a rejection of M. PASTEUR'S Theory of Putrefaction, and of the so-called 'Germ Theory of Disease.'"

SMALL CONSERVATORIES in the vicinity of large towns are seldom seen in a satisfactory condition, simply because their owners attempt to grow plants which they have neither the time nor the skill to cultivate properly. These structures are generally furnished with a stage in the centre, filled with a lot of soft-wooded stuff, seldom, if ever, in a healthy state. Enter them when you will, the majority of the plants are in a sickly condition through a want of sufficient air, water, or space for the development of the

roots. This state of things is not by any means an evidence of either ignorance or wilful neglect, especially in the eyes of those who know the amount of labor and attention necessary to keep a houseful of plants in small pots in health. Where their owners are employed in business from early in the morning until late in the evening, it is impossible to give the plants the attention they require, even supposing they possess the necessary knowledge for managing them. Indeed, when we consider the expense attached to the possession of these little houses, there is no occasion for wonder when we see the plants cleared out to make way for lumber, or to enable the house to be used as a smoking room.

Pot plants are very well in conservatories; indeed, indispensable, where they must be kept gay with flowering plants throughout the year, and where there are other houses for the purpose of maintaining successional supplies; but where there are no other houses, and the owner is away from home during the day, nothing ought to be grown in them but plants that thrive satisfactorily when out in a bed of soil. This brings us to the remedy, which is as simple as it is effectual, and we feel assured its general adoption would be attended with beneficial results. There are a vast number of plants, both flowering and ornamental-leaved, which quite equal in beauty and effectiveness those that can be grown in pots.

It is not necessary for us to go into details here; therefore we will content ourselves with mentioning the camellias, rhododendrons, and acacias amongst flowering plants, and aralias, ficuses, dracenas, tree ferns, and palms amongst plants remarkable for their ornamental leafage, which are eminently adapted for this purpose. In addition to these, there are a number of plants of a scandent habit which, when planted out in a bed of good soil, grow freely and flower almost perpetually; in fact, in a manner unknown to those who have been accustomed all their lives to plants grown in pots.

To carry out the reform here suggested, a heavy expense is by no means necessary, because, excepting the purchase of the plants, the formation of a bed of turfy loam, either in the centre or around the sides of the house, is all that is necessary. The bed for the reception of the plants should be about three feet in depth, and have a layer of brickbats underneath, to prevent the soil becoming sour from stagnant moisture. It is of no consequence whatever, so far as the growth of the plant is concerned, whether the

bed is above or below the floor of the house; but, for appearance-sake, it is well that it should not exceed 12 inches above the level. Plants put out in a bed of this kind would virtually take care of themselves, as a good soaking of water once a week would be quite sufficient during the summer months; and, of course, during other seasons of the year, once a fortnight, or even once a month, will be ample. Indeed, with the exception of an occasional skiff with the syringe, to

keep the foliage free from dust, and the necessary attention to air-giving, the plants will be able to take care of themselves, and there will be no occasion to fear, when returning home in the evening, that they will be half dead for the want of water, as must be the case with soft-wooded stuff grown in small pots. We call attention to this subject now because the present season of the year affords a good opportunity for making the necessary alterations.—*Gardener's Weekly*.

HORTICULTURAL NOTICES.

PENNA. FRUIT GROWERS' SOCIETY.

The Annual Meeting of this Society will convene in Chambersburg, Pa., January 18th, 1871. It is confidently expected that this session will prove of unusual interest to every fruit-grower, and all desiring the advancement of Horticulture are invited to attend. Addresses will be delivered by Wm. Parry, of N. J., Dr. J. S. Houghton of Philadelphia, and E. Satterthwait of Montgomery Co., in addition to the annual address of the President. Persons having fine specimens of fruit, are invited to exhibit specimens of the same.

ANNUAL MEETING OF THE OHIO HORTICULTURAL SOCIETY.

The Annual Meeting of this Society will be held at Urbana, on Wednesday, Thursday and Friday, Dec. 7th, 8th and 9th, 1870, in accordance with the invitation of the citizens of that place, and a cordial invitation is extended to all persons interested in Horticulture to attend the meeting and take part in the discussions. The past season has been quite a remarkable one, and many new facts and observations of practical interest will no doubt be presented with suggestions for future improvement; hence a large attendance is desirable, and it is hoped that members will come prepared to stay the whole time, and to contribute the results of their experience or observation on the topics discussed. The programme will be somewhat as follows:

WEDNESDAY FORENOON—Informal meeting for arranging fruits for exhibition, &c.

Afternoon Session will be occupied by appointing committees and hearing ad-interim reports.

Evening—Address of Welcome by a citizen of Urbana, and the Annual Address of the Presi-

dent of the Society; Report of Nominating Committee and election of officers.

THURSDAY MORNING—Reports, &c., followed by an essay or address on *Æsthetic Horticulture*; the advance of the Art—its influence on Agriculture and Rural Life. Followed by discussions.

Afternoon Session—Essays or remarks on *Practical Horticulture*; The Garden—The Farmer's Garden—The Orchard. Followed by discussions.

Evening Session—Reports of Committees. New or rare fruits and vegetables presented and discussed. Essay or remarks on the *Vine* and its culture; discussion on new varieties of Grapes.

FRIDAY MORNING—Reports and resolutions; Essays on *Small Fruits*, their influence on health; culture and management; marketing the surplus; discussion on varieties.

Afternoon Session—Miscellaneous matters; unfinished business; concluding resolutions; adjournment.

Persons having new or rare fruits which they desire to have examined by the Society and noticed in the reports, are requested to bring or send specimens to the meeting. Packages from these who cannot attend may be sent by Express at the Expense of the Society, directed to the Secretary, or J. D. KIRKPATRICK, Urbana.

Rail Roads—The Dayton and Sandusky line, and the Cleveland and Indianapolis line (to Bellefontaine) will favor the Society with a reduction of fare to persons attending the meeting.

Members of the Society who do not attend the meeting, and wish to continue their names on the roll, are requested to remit the annual fee (\$1) to Dr. J. W. Dunham, Collamer, O., Treasurer, or to the Secretary, M. B. BATEHAM,

J. A. WARDER, President.

The Gardener's Monthly.

AND

HORTICULTURAL ADVERTISER.

DEVOTED TO HORTICULTURE, ARBORICULTURE, BOTANY AND RURAL AFFAIRS

EDITED BY THOMAS MEEHAN,

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